Accelerating strategic investment in the European Union beyond 2026

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Executive summary

- The European Union's ability to meet its long-term objectives – primarily managing the climate and digital transitions and achieving greater economic resilience – will depend crucially on how much it invests and what it invests in. For the two transitions, the EU member states collectively face a total annual investment gap of at least €481 billion up to 2030. Closing this gap, which is necessary if the EU is to achieve its strategic objectives, will rely on the efficient use of public resources and on mobilising private investment.
- We discuss a potential long-term EU approach to the financing of strategic objectives. We define the notion of strategic investment in the context of the EU, set conditions for such investment to be (co-) financed at EU-level, and make recommendations about strategic investment in the EU beyond 2026. We argue that EU (co-)finance would be justified if there is demonstrable EU value added, for example in the form of cross-border efficiency gains. The term 'strategic' would help prioritise how the EU pursues its economic and security interests.
- Examples that would qualify as European strategic investments include energy and connectivity infrastructure with cross-border impact, and facilities that boost innovation and promote economic security and resilience at the EU level.
- We examine various past and present EU strategic project financing programmes. We also survey national programmes to identify best practices in public investment management. We make the following main policy recommendations:

1. There is a lack of continuity in the way that the EU has pursued investments in that programmes have been finite and sporadic, with different sources of funding and overlapping objectives. We propose the creation of a dedicated and permanent fund for European Strategic Investments (ESIs), that can come in the first instance from a partly repurposed European budget (the Multiannual Financial Framework).
2. We argue that the European Investment Bank (EIB) would be the natural manager of such a fund. The fund itself should employ all the financial instruments at its disposal to finance projects. Projects should be evaluated in terms of how well they provide European added value and contribute to the EU's strategic objectives.
3. Beyond current financing means, the EU still needs to make progress on establishing new own resources, or revenues for the EU budget, to repay debt issued under the NextGenerationEU post-pandemic recovery instrument. At a later stage, a consequence of having established new own resources will be that the EU will then have additional dedicated financing streams that it could use for ESIs. This would ensure continuity in pursuing strategic objectives.

Sommaire

- La capacité de l'Union européenne à atteindre ses objectifs à long terme – principalement les transitions climatique et numérique et l'amélioration de la résilience économique – dépendra essentiellement de combien et comment elle investira. Pour ces deux transitions uniquement, l'UE et ses pays membres font face à un déficit d'investissement annuel total d'au moins 481 milliards d'euros jusqu'en 2030. Combler ce déficit, nécessaire si l'UE veut atteindre ses objectifs stratégiques, impliquera une utilisation optimisée des ressources publiques et une mobilisation de l'investissement privé.
- Nous examinons une possible approche à long terme pour le financement des objectifs stratégiques de l'UE. Nous définissons la notion d'investissement stratégique dans le contexte de l'UE, établissons les conditions pour que de tels investissements soient (co-)financés au niveau de l'Union, et formulons des recommandations sur l'investissement stratégique au-delà de 2026. Nous pensons que le (co-)financement des investissements de l'UE serait justifié s'il existe une valeur ajoutée européenne démontrable, par exemple sous la forme de gains d'efficacité transfrontaliers. Le terme « stratégique » contribuerait à prioriser la manière dont l'UE poursuit ses intérêts économiques et de sécurité.
- Parmi les exemples d'investissements stratégiques européens, nous incluons les infrastructures énergétiques et de connectivité ayant un impact transfrontalier, ainsi que les installations qui stimulent l'innovation et favorisent la sécurité et la résilience économiques au niveau de l'UE.
- Nous examinons divers programmes de financement de projets stratégiques de l'UE, passés et présents. Nous étudions également des programmes d'investissement publics nationaux afin d'identifier les meilleures pratiques en matière de gestion des investissements publics. Nous formulons les principales recommandations politiques suivantes :

1. Il y a un manque de continuité dans la manière dont l'UE a mené les investissements dans la mesure où les programmes ont été limités et sporadiques, avec différentes sources de financement et des objectifs qui se chevauchent. Nous proposons la création d'un fonds dédié et permanent pour les Investissements Stratégiques Européens qui pourrait provenir en premier lieu d'un budget européen (le Cadre Financier Pluriannuel) partiellement réaffecté.
2. Nous considérons que la Banque européenne d'investissement serait le gestionnaire naturel d'un tel fonds. Le fonds lui-même devrait utiliser tous les instruments financiers à sa disposition pour financer des projets. Les projets devraient être évalués en fonction de leur capacité à apporter une valeur ajoutée européenne et à contribuer aux objectifs stratégiques de l'UE.
3. Au-delà des moyens de financement actuels, l'UE doit encore progresser dans la mise en place de nouvelles ressources propres, ou de recettes pour le budget de l'UE, afin de rembourser la dette émise dans le cadre de l'instrument de redressement post-pandémique NextGenerationEU. À un stade ultérieur, l'établissement de nouvelles ressources propres aura pour conséquence que l'UE disposera alors de flux de financement dédiés aux investissements stratégiques européens afin d'en assurer la continuité.

Executive summary

- Het vermogen van de Europese Unie om haar langetermijndoelstellingen te halen - in de eerste plaats het beheersen van de klimaat en digitale transitie en het bereiken van grotere economische veerkracht - zal in cruciale mate afhangen van hoeveel ze investeert en waarin. Voor de twee transities worden de EU en haar lidstaten geconfronteerd met een totaal jaarlijks investeringstekort van ten minste 481 miljard euro tot 2030. Om dit gat te dichten, wat noodzakelijk is als de EU haar strategische doelstellingen wil bereiken, moeten de overheidsmiddelen efficiënt worden ingezet en moeten privé investeringen worden gemobiliseerd.
- We bespreken een mogelijke langetermijnaanpak van de EU voor de financiering van strategische doelstellingen. We definiëren de notie van strategische investering in de context van de EU, stellen voorwaarden aan de (mede)financiering van dergelijke investeringen op EU-niveau en doen aanbevelingen voor strategische investeringen in de EU na 2026. Wij stellen dat (mede)financiering door de EU gerechtvaardigd is als er sprake is van aantoonbare meerwaarde voor de EU, bijvoorbeeld in de vorm van grensoverschrijdende efficiëntiewinst. De term 'strategisch' zou helpen prioriteiten te stellen voor de manier waarop de EU haar economische en veiligheidsbelangen nastreeft.
- Voorbeelden die in aanmerking komen als Europese strategische investeringen zijn energie- en connectiviteitsinfrastructuur met een grensoverschrijdend effect en faciliteiten die innovatie stimuleren en economische veiligheid en veerkracht op EU-niveau bevorderen.
- We kijken naar verschillende vroegere en huidige EU-financieringsprogramma's voor strategische projecten. Tevens onderzoeken we nationale programma's om best practices in het beheer van overheidsinvesteringen te identificeren. We doen de volgende belangrijke beleidsaanbevelingen:

1. Er is een gebrek aan continuïteit in de manier waarop de EU investeringen heeft nagestreefd, programma's zijn namelijk eindig en sporadisch geweest, met verschillende financieringsbronnen en overlappende doelstellingen. Wij stellen voor om een speciaal en permanent fonds voor Europese Strategische Investeringen (ESIs) op te richten, dat in eerste instantie afkomstig kan zijn uit een gedeeltelijk heringedeelde Europese begroting (het Meerjarig Financieel Kader).
2. Wij stellen dat de Europese Investeringsbank (EIB) de natuurlijke beheerder van een dergelijk fonds zou zijn. , Het fonds zelf zou alle financiële instrumenten die het tot zijn beschikking heeft zou moeten gebruiken om projecten te financieren. Projecten moeten worden beoordeeld op de mate waarin ze Europese meerwaarde bieden en bijdragen aan de strategische doelstellingen van de EU.
3. Naast de huidige financiële middelen moet de EU nog steeds vooruitgang maken bij het vaststellen van nieuwe eigen middelen, of inkomsten voor de EU-begroting, om de schuld terug te betalen die is uitgegeven in het kader van het post-pandemisch herstelinstrument NextGenerationEU. In een later stadium zal een gevolg van het vaststellen van nieuwe eigen middelen zijn dat de EU dan zal beschikken over specifieke financieringsstromen voor ESI's om de continuïteit te waarborgen.

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1 Introduction

The European Union's ability to meet its long-term objectives, from managing the twin transitions (climate and digital) to greater economic resilience, and from security to promoting multilateralism, will depend crucially on how much it invests and in what. The huge investment that has been identified as a prerequisite to move forward on some of these objectives will require the participation of the private sector and public authorities alike. In this study, we explore the EU's role, beyond that of member states, in financing directly some of the strategically relevant projects.

A major objective for the EU economy is to remain competitive globally, without resorting to protectionist measures that go against the multilateral system.

A necessary ingredient to remaining competitive in a world of big players is to increase and maintain scale. Deepening and expanding the EU single market for goods and services are ways of promoting scale. European economies still operate with a considerable home bias that favours domestic firms over those that may reside even just over the border. A bigger and deeper single market for goods and services is necessary for developing big firms that can compete globally, and for creating conditions for innovation and ensuring dynamism in the labour force.

Finance should play an important role in deepening the single market but when it comes to financial intermediation, there are no unified markets for banks and capital across the EU. Despite the creation of a banking union, banks still operate predominantly within national borders. Making progress with completing the banking union would help move in the direction of a unified market that would increase the financing capacity in each country. But bank finance also has its limits as it is not conducive to risk-taking (Demertzis *et al*, 2021). To deal with these risks, the EU must develop deeper and more unified capital markets to finance riskier projects.

In the meantime, the lack of such risk finance means that the public sector must absorb some of the risk associated with delivering on longer-term and less-certain investments. Some of these investments may be strategic in nature. As not all countries have the same fiscal capacity, they may opt to pursue some of these European strategic objectives at different speeds.

This can be problematic. Pursuing, say, climate goals at different speeds may compromise the ability of all countries to achieve important milestones. This is why we see an important role for the EU to ensure that all countries advance at a minimum acceptable speed, at least for some of the most important European public goods, such as climate or connectivity. With European elections in 2024, this is a natural point for the EU to reflect on its long-term strategy, including on how to invest beyond 2026, the year when the new European budget will have to be agreed and the NextGenerationEU initiative (NGEU) comes to an end.

We define the notion of strategic investment in the context of the EU, set out conditions for such investment to be co-financed by the EU and make recommendations about what these should be in the EU beyond 2026. We present first the EU's main long-term objectives, in the context of the challenges it faces. All member states and the EU as an entity will have to plan how to accelerate investment to meet these objectives.

We discuss the rationale for EU-level financing of some of these objectives, alongside private sector and member-state financing. EU involvement would necessarily require there to be value added, for example in the form of cross-border efficiency gains, in pursuing some of these long-term objectives. This is necessary on economic grounds and is also crucial for democratic legitimacy and acceptability. Having identified projects that offer such efficiency gains, the EU needs to prioritise those that are strategic – in other words, pivotal to the EU's economic interests and economic security.

We look at the EU's previous efforts to finance long-term projects using funds from the European budget (Multiannual Financial Framework, MFF) and the newly established NGEU. We observe a lack of continuity in the instruments used to pursue these objectives as programmes span at most seven years and typically between three and five. Also, multiple institutions oversee different programmes that sometimes have overlapping objectives. Additionally, we look at how countries have used public investments to advance their own objectives, as a way of identifying best practices in terms of maximising the impact of public resources.

We make two main contributions in this study.

First, we define strategic investment in the context of the EU and set out conditions identifying when to finance projects with EU resources. Strategic investment, in the form of gross fixed capital formation, is investment consistent with the EU's long-term objectives and priorities. We discuss when there is a good case for the EU to finance some of these strategic objectives directly, beyond what EU countries and the private sector do. When EU '*additionality*' is established, it means that projects will be underprovided if left to countries or the private sector alone. Cross-border efficiency gains would be one example of a justification for EU financing.

Second, we formulate recommendations on how to think about European strategic investments, grouped into three categories:

1. Reform current funds and tools. The EU's previous attempts to finance projects of strategic relevance have been characterised by a series of time-limited programmes. Such funds are finite in that they last only a few years, they come from different sources of funding, and they often overlap. We propose creating a dedicated fund for European Strategic Investments (ESIs). The priorities in terms of achieving long-term objectives need to be evaluated periodically. Such continuity will require dedicated funds that can come in the first instance from a partly repurposed European budget (the MFF).
2. Put the European Investment Bank in charge. A dedicated fund will also require a dedicated manager. We argue that the EIB is the natural manager for such a fund. Financial support should be distributed on a project-by-project basis once the European added value has been established. The EIB has the resources and skills to evaluate complex and technical projects and can build tools for transparent monitoring of projects.
3. Work towards new funding tools. The EU still needs to make progress with finding new 'own resources' to finance the debt it has issued under NGEU. At a later stage, a consequence of establishing new sources of income for the EU budget will be that the EU will have dedicated financing streams for ESIs as a way of ensuring continuity. As ESIs are relevant to all EU citizens of current and future generations, they are a prime candidate to be financed by common EU resources and through long-term debt.

2 The EU's long-term objectives and the role of public investment

In this section, we identify the long-term objectives the EU has set for itself. Then we summarise some of the budgetary needs that have been identified in the literature and discuss the benefits of public investment, as described by the literature.

2.1 The EU's long-term objectives

As is the case for any investment, strategic investment needs to be consistent with a set of long-term objectives. This is necessary to ensure consistency in the way investments are selected and implemented. European strategic investments should therefore be consistent with the long-term objectives set at EU level. Based on European Commission publications, we group high-level EU objectives into the following five groups.

1. Open strategic autonomy and competitiveness

The European Commission Joint Research Centre's 2023 strategic foresight report (Matti *et al*, 2023, p. 30) states that "*Open strategic autonomy refers to the EU's objective of strengthening independence in critical areas, supporting the EU's capacity to act, while being open to global trade and cooperation.*" Open strategic autonomy became an important topic initially after the first supply chain interruptions during the pandemic, and later with the increased geopolitical tensions globally following the Russian invasion of Ukraine.

The objective of competitiveness refers to strengthening Europe's global competitiveness. The EU needs to identify the conditions that will allow its industries to promote sustainable growth internally and to compete in global markets. It is particularly important to ensure that new legislative proposals and high-level projects, such as the Twin Transition (see below), do not harm the region's competitiveness. Fostering EU leadership in technology and cybersecurity have also been highlighted as crucial to ensure European competitiveness on the global stage.

2. Twin transition

EU policymakers employ the concept of the 'twin transition' when talking about transforming EU economies into more environmentally sustainable and more digitalised systems. The objectives of the landmark European Green Deal were set out in the European Commission's priorities for 2019-2024[1]. They are: (i) no net emissions of greenhouse gases by 2050, (ii) economic growth decoupled from resource use, and (iii) not leaving any citizens behind in the transformation.

The digital transition aims to prepare businesses and citizens for the increasing importance of digital technologies. Building the necessary infrastructure to take advantage of new technologies is part of the 'European Digital Decade', as is enabling citizens to participate in transforming labour markets through re-skilling. Ensuring proper and safe development and use of artificial intelligence is also part of this objective.

3. Resilience and economic and territorial cohesion

The 2020 Strategic Foresight Report (European Commission, 2020a, p. 3) defined resilience as "*the ability not only to withstand and cope with challenges but also to undergo transitions in a sustainable, fair, and democratic manner*." This objective aims to prepare Europe for future economic, social and health shocks. Recently the concept has been captured by the notion of de-risking, which refers to the reduction of extreme dependencies on critical goods and promotes EU economic security. Fostering the resilience and strength of health systems in the EU is also part of this objective.

Economic and territorial cohesion refers to strengthening the internal cohesion of the EU, including efforts to address imbalances between countries and regions. The goal is to achieve a level playing field inside the EU for all economic players and to preserve the integrity of the single market. In the process, it is important to provide equal opportunities to all citizens across all regions.

4. Security and European values

The European Council listed "*protecting citizens and freedoms*" as part of its 2019-2024 agenda (European Council, 2019). The relevance of this theme has only increased with the Russian invasion of Ukraine. This objective includes securing the EU borders and ensuring the security of supply chains. Defending and promoting European values, such as ensuring and strengthening democracy and protecting the rule of law, is a key EU objective.

5. Open markets and rules-based multilateralism

Europe's relationship with the rest of the world is defined by adherence to rules-based multilateralism and open markets. Supporting and cooperating with other regions and economies to achieve common goals, such as the twin transitions, is also part of this objective. The Global Gateway facility – with an objective of investing internationally in high-quality and sustainable infrastructure to foster development and growth in partner countries – is an example of such a policy[2].

1 See the European Commission's 2019-2024 priorities website, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024_en.
2 See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/stronger-europe-world/global-gateway_en.

2.2 European budgetary needs

The European Commission has identified a series of budgetary needs to be met for the EU to meet its long-term objectives. These span several areas. A non-exhaustive list includes:

1. Climate and energy transition. Pisani-Ferry *et al* (2023) reported that for the EU to achieve a 55 percent emissions reduction by 2030, compared to 1990, it will need annual additional investment (compared to investment levels from 2011 to 2020) amounting to about 2 percent of GDP (€356.4 billion). This represents investment in energy and transport systems. Pisani-Ferry *et al* (2023) also estimated that when it comes to the green transition, annual public investment is expected to be within 0.5 percent to 1 percent of GDP in the future (see also Darvas and Wolff, 2022). A substantial part of the gap will need to be filled by the private sector. Lenaerts *et al* (2021) reported similar numbers that go beyond 2030 and studied how to reach climate neutrality by 2050. More specifically, achieving the benchmarks set forth in the 'Fit for 55' package – a body of EU laws facilitating the reduction of net EU greenhouse gas emissions by at least 55 percent by 2030 compared to 1990 – would demand annual investment of approximately €487 billion for the energy sector and €754 billion for the transportation sector from 2021 to 2030. Additionally, REPowerEU, a programme put together after the Russian invasion of Ukraine to increase the EU's energy resilience by decoupling from Russian fossil fuels, entails total investment of €210 billion between now and 2027 (European Commission, 2022a).
2. The digital transition. Bridging the investment gap within the EU for the digital transition will entail a minimum annual expenditure of €125 billion between 2020 and 2030 (European Commission, 2020b). According to Papazoglou *et al* (2023), the principal EU funding instruments – the Recovery and Resilience Facility (RRF), the Connecting Europe Facility 2 (CEF2) Digital, the Digital Europe Programme, Cohesion Policy and Horizon Europe – will contribute a total of over €165 billion up to 2027 to support the Digital Decade targets, to be achieved by 2030[3]. More than 70 percent of these funds will come from the RRF. Ockenfels *et al* (2023) estimated an overall investment gap of at least €174 billion to meet just two of the twelve Digital Decade targets (specifically the fixed Gigabit coverage and providing 'full 5G service'). Again, they argue that the private sector will have to play a major role to fill this gap.
3. Defence and security. The financial implications of the new geopolitical landscape are also substantial. Defence spending by EU countries reached €214 billion and €240 billion, in 2021 and 2022 respectively (European Defence Agency, 2023). This marks the eighth year of consecutive growth in defence spending. Several EU countries still fall short of their NATO obligation of military spending of 2 percent of GDP.
4. Reconstruction of Ukraine. The reconstruction efforts in Ukraine will necessitate a collective contribution of €384 billion from all partners over the next decade (World Bank, 2023). This amount will increase in line with the duration of the war, and it is also expected that the private sector will bear a part of that. In 2021, the Council of the EU approved the establishment of the European Peace Facility (EPF), with a current financial ceiling exceeding €12 billion. The EPF aims to prevent conflicts, promote peace and enhance international security. In October 2022, the EU Military Assistance Mission in support of Ukraine (EUMAM)was formed with the purpose of providing individual, collective and specialised training to Ukraine's Armed Forces, and to coordinate and synchronise the activities of member states delivering this training.
5. Health Union. Similarly, an EU4Health programme with a budget of €5.3 billion was put together in 2021 for the period 2021-2027 to advance the EU's health policies, towards a European Health Union, intended to ensure collective preparation for, and response to, health crises[4].

3 Targets include, for example, having all public services accessible online and having 75 percent of EU companies using cloud services, artificial intelligence and/or big data; see https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en.

4 See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/promoting-our-european-way-life/european-health-union_en.

Amounts stated above include both investment and spending needs, as it is often not possible to separate the two. From 2021 to 2027, EU spending power is just over €1800 billion, of which €1050 comes from the MFF and €750 billion from NGEU. This amounts to an average of €257 billion in annual spending power. This average annual total spending power falls significantly short of the €356.4 billion in additional annual investment needed for the green transition alone, as estimated by Pisany-Ferry *et al* (2023). Even if the EU were to spend its entire budgetary resources only on the green transition, it would fall very short of what is needed. And that is only one of the EU's objectives. This is why many voices have called for private investment to be mobilised to help achieve the EU's objectives.

EU policymakers recognise the importance of maximising crowding-in of private capital for strategic projects. This was a central aim of two EU investment programmes: the investment plan for Europe (the so-called 'Juncker Plan') and InvestEU (see section 4.2 for details of these programmes). These two initiatives were established in 2015 and 2021, respectively, to increase overall investment levels in the EU. EU initiatives need to be careful to maximise the impact of the limited resources, including by avoiding the crowding-out of private-sector investment. Instead, private investment should be facilitated by EU actions. These include participating in the financing of projects, by picking up the risk tranches that the private sector is reluctant to take on, reducing red tape and unifying regulatory frameworks for infrastructure. The scarcity of resources also underlines the importance of well-designed allocation mechanisms and the prioritisation of objectives.

EU countries have a crucial role to play by deploying public funds to help finance investments of strategic relevance for the EU. But not all countries have the same ability to play a role in this regard. Darvas *et al* (2023a) reported that the European Commission projects that 18 of 27 EU countries will have either a debt level above 60 percent of GDP or a budget deficit above 3 percent of GDP in 2024, which under the old fiscal framework[5] would trigger the EU excessive deficit procedure (EDP). The EDP was suspended in 2020 because of the COVID-19 pandemic but its reinstatement is planned in 2024. A reform of the EU fiscal framework agreed at the end of 2023 requires from EU countries very ambitious fiscal adjustment of more than 2 percent of GDP over the medium term, in addition to what had already been planned for 2023-24 (Darvas *et al*, 2023b). In addition, there is also the issue of the speed at which countries are asked to reduce debt, which will constrain some countries even further in the medium term (after countries have brought their deficit below the level of 3 percent of GDP. Budgetary limitations and the need to reduce high levels of debt will directly affect the ability of countries to undertake strategic investments at national level. Part of the rationale for pursuing certain ESIs at EU level is based on the need for all member states to advance at a common minimum speed to ensure that EU long-term objectives are not threatened by lack of progress in individual countries. Tighter fiscal rules might lead countries to cut back on investment support, increasing the importance of a well-defined framework for EU strategic investments.

Given the importance of the issue of how to finance the EU's objectives, the discussion goes beyond the two main current tools, the MFF and NGEU, and touches on the wider issue of EU fiscal capacity. One possibility is to pool resources at EU level, in other words to establish a stream of additional 'own resources' that can be used to fund, among other things, strategic investments. For the moment the discussion on own resources is motivated by the need to repay NGEU borrowing, which involved the largest EU bond issuance in its history. As a one-off instrument however, own resources are also finite. We argue that if permanent new income streams were to be established, then ESIs would be the next natural candidate item to be funded through vehicles other than the MFF.

European Commission (2021) proposed three new sources of revenue for the EU budget: 1) the EU emissions trading system, 2) the Carbon Border Adjustment Mechanism (CBAM), and 3) taking an allocation from member state taxes on the largest multinational companies. The European Parliament supports

5 A reform of the framework was agreed in principle in late December 2023; see Jeromin Zettelmeyer, 'Assessing the Ecofin compromise on fiscal rules reform', *First Glance*, 21 December 2023, Bruegel, https://www.bruegel.org/first-glance/assessing-ecofin-compromise-fiscal-rules-reform.

these three sources of revenue and has asked the Commission to also explore several other potential sources as a basis for own resources, including corporate taxation (derived from a aggregation of the corporate tax base in the EU, as put forwards in the Business in Europe: Framework for Income Taxation (or BEFIT proposal), a tax on cryptocurrencies, a tax related to the digital economy, a financial transactions tax (FTT) and an EU 'fair border tax' (European Parliament, 2023a). In a February 2023 resolution, the European Parliament (2023b) urged the Commission and member states to make progress on adopting an FTT to help the EU boost its industrial competitiveness and other policy priorities.

To that we would add the point that temporary issuance of debt for the RRF meant that the EU did not benefit from its full potential (Claeys *et al*, 2021). Even though the European Commission followed the diversification practices of big issuers, the markets still priced a premium on this debt over and above what fundamentals justify. This was a consequence of: i) the issued volume being small and therefore not fulfilling the purpose of issuing a significant new safe asset, and ii) the issuance being presented as a one-off event, thus making it less attractive to investors. A permanent stream of own resources would lead to more favourable issued debt by the EU than now. Last, the intergenerational nature of ESIs makes a case for financing them with intertemporal means, such as long-term debt issued by the EU. Naturally, other instruments than debt issuance should also be considered (Helm, 2023).

2.3 The macroeconomic impact of public investment

The role of public investment in promoting economic growth has been studied extensively in the literature. The consensus is that public investments have a positive multiplier effect on the economy, but the magnitude of this multiplier effect varies depending on the economic situation, the composition of investments and the economy's absorption capacity. Public investment is seen as a potential driver of long-term growth by catalysing private sector investment and by enhancing productivity by modernising infrastructure, stimulating innovation and promoting education.

Moreover, public investment can play a crucial role in stabilising the economy by mitigating the negative effects of economic contractions. The EU Recovery and Resilience Facility (RRF) offers a good example, having the objective of supporting investments in the twin transition during a severe recession when public resources were very limited. By helping to sustain the course on meeting long-term targets, the RRF has relieved national budgets and allowed countries to deal with the serious contraction during the pandemic.

Based on the literature, we summarise next the effects of public investment on the macroeconomy.

2.3.1 Impact on economic growth

Public investment in infrastructure and education has played a central role in growth and poverty reduction strategies designed by many developing countries in recent decades (United Nations, 2020). This role is only likely to increase in importance in a post-COVID-19 world as countries seek to restore pre-pandemic growth rates and repair the scarring effects that lockdowns and closures have inflicted on human capital (Agarwal, 2022; Larch *et al*, 2022). There is a substantial body of work that seeks to quantify the macroeconomic effects of such investment efforts and its financing (Atolia *et al*, 2021; Gurara *et al*, 2019; Zanna *et al*, 2019).

An increase in public investment can affect economic growth in two ways. First, an increase in public investment has positive effects on aggregate demand. Second, efficient public investment can contribute to the economy's productive capacity by increasing the stock of public capital. However, it is important to consider the costs and benefits of additional public capital carefully, taking into account the financing alternatives and their effects on output and public finances. Considerable uncertainty surrounds the size of short-term fiscal multipliers. They are, for example, larger during recessions, but found to be smaller in the presence of weak public finances, particularly when debt sustainability is at risk. In addition, multipliers depend on how the expenditure is financed, through debt, increases in revenues or cuts to other expenditure categories.

Empirical estimates of the effect of public capital on output tend to be positive but variable (Romp and

De Haan, 2007). Studies by Barro (1988) and Aschauer (1989b) found that increases in public capital, such as infrastructure investment, have a positive impact on long-term economic growth by contributing to the economy's productive capacity. Meta-analyses reveal an average long-term elasticity ranging from 0.12 (Bom and Ligthart, 2014) to 0.16 (Nuñez-Serrano and Velazquez, 2017) for public capital. Thus, for every 1 percent increase in public capital, long-term output tends to increase by somewhere between 0.12 percent to 0.16 percent, which is far below Aschauer's (1989b) estimate of 0.39 percent. Abiad *et al* (2016) found positive and significant effects of public investment on output for advanced economies, both in the short-term and long term. For low-income developing countries, Furceri and Li (2017) found a positive effect of public investment on output in the short and medium terms. Ramey (2021) underlined the macroeconomic perspective on government investment, offering robust evidence in favour of the enduring advantages of infrastructure expenditure.

2.3.2 Impact on productivity, job creation and inequality

One of the primary channels through which public investment affects economic growth is by enhancing productivity. Infrastructure investment, such as roads, bridges and telecommunications networks, reduce transportation costs and improve the overall efficiency of the economy (Munnell, 1990).

Public investment also plays a vital role in job creation. Investment in infrastructure projects generates employment opportunities in construction, engineering and related industries. Cingano *et al* (2022) evaluated a public investment subsidy programme in Italy. Under this scheme, funds were allocated through calls targeting different sectors, primarily in industry. The main objective of this policy was job creation. The authors found that the policy induced the desired behavioural response in terms of job creation: firms benefitting from the programme increased investment by 39 percent and employment by 17 percent over a six-year period, compared to similar firms not eligible for the subsidy.

Infrastructure investment can have an impact on income inequality beyond its effect on aggregate income. Infrastructure can improve the access of the poor to services and productive opportunities. It can also improve access to human capital. Infrastructure can also support the integration of poor and marginalised communities into the wider society and economy (Calderón and Servén, 2014). Empirical evidence indicates that infrastructure development and access is negatively correlated with various measures of inequality, although with some measurement limitations (for an overview see Calderón and Servén, 2014). While the evidence on infrastructure and inequality is limited, the impact on inequality should be taken into account when planning infrastructure projects.

2.3.3 Differences between countries and investment types

The effectiveness of public investment is shown to depend on a country's level of development,

institutional quality and governance. Governance of the public investment process affects the macroeconomic effects of public investment in different ways (Miyamoto *et al*, 2020). Countries with stronger governance achieve a stronger output impact of public investment. Stronger infrastructure governance[6] helps public investment yield a higher growth dividend by improving investment efficiency and productivity, and it stimulates private-sector investment. By contrast, weak infrastructure governance is shown to crowd out private investment, lead to higher debt-to-GDP ratios and cause significant waste of public money, all of which have a negative impact on output, even after sizeable public investments.

Moreover, the type of investment matters. While infrastructure, education and healthcare investments are all recognised as having positive effects on output, the effect varies in magnitude (Ramey, 2021; Atolia *et al*, 2021). Holmgren and Merkel (2017) performed a meta-analysis of the relationship between infrastructure investment and economic growth. They found significant variance in the effect of infrastructure investment on production. Specifically, the estimated effects of a one percent increase in infrastructure investment range from a 0.06 percent decrease to a 0.52 percent increase in output. The effects appear to

6 In other words, stronger institutions to manage public investments.

vary depending on the type of infrastructure in which the investment is made, and the type of industry. A more recent line of research indicates that investment multipliers are more pronounced for green investments. According to Batini *et al* (2022), spending on clean energy, such as solar, wind or nuclear, exerts a GDP impact approximately two to seven times greater (depending on the technology and timeframe analysed) than spending on non-environmentally friendly energy sources, including oil, gas and coal.

Afonso and Rodrigues (2023) studied the impact of public investment in construction and R&D in 40 countries, notably on economic growth and on crowding-out effects on private investment. They compared the effects of these investments in emerging and advanced economies by controlling for the level of economic development. They found that: i) innovations in public investment have more positive effects on GDP growth and private investment in emerging economies; ii) the positive impulse of public investment on the private sector is pronounced and significant in emerging economies; iii) government construction investment has a more positive effect on economic growth in emerging economies; iv) innovations in public construction crowd out private investment spending in advanced countries; v) emerging economies benefit from public R&D investment.

Two recent, timely papers (Kantor and Whalley, 2023; Gross and Sampat, 2023) showed that public R&D may have large effects locally and also at the aggregate level. Both papers examined episodes of applied public R&D 'moonshots': the US government's massive R&D effort during the Second World War and the US Apollo mission in the 1960s that culminated in the moon landing. In both cases the level of public investment was massive.

Bloom *et al* (2019) discussed several of the main innovation policy levers and described the available evidence on their effectiveness: tax policies to favour research and development, government research grants, policies aimed at increasing the supply of human capital focused on innovation, intellectual property policies and pro-competitive policies. They brought together this evidence into a single-page 'toolkit', in which they ranked policies in terms of the quality and implications of the available evidence and the policies' overall impact from a social cost-benefit perspective. The authors found that, in the short term, R&D tax credits and direct public funding prove most impactful. However, increasing the supply of human capital yields greater effectiveness in the long run. Additionally, while competition and open trade policies may offer somewhat modest benefits for innovation, they are cost-effective.

In conclusion, there is general agreement that public investment can play a positive role in economic growth and the achievement of policy objectives. However, the effective implementation of these investments and their alignment with economic and policy priorities are pivotal to their success.

3 Defining European strategic investments

The term 'strategic investment' is used often but very seldom defined. In his award-winning book *Chip War*, Chris Miller (2022) quoted a Reagan Administration economist who, in response to the multiple Silicon Valley requests for support for the semiconductor industry, invoking its strategic relevance, stated: "*Potato chips, computer chips, what's the difference? … They are all chips. A hundred dollars of one or a hundred dollars of the other is still a hundred.*" The quote illustrates the lack of a common definition of the notion of 'strategic'. Is strategic something that you cannot do without, or is it something that aims to achieve long-term objectives, or possibly both, or something else entirely?

According to the Cambridge Dictionary, the term strategic refers to investments made by a company with the intention of enhancing its long-term success. This might involve investing in a new business that offers access to new markets or developing innovative products. Milgrom and Roberts (1992) defined strategic investments as investments that benefit the entire organisation, not just the specific unit making the investment decision. These investments are crucial for businesses as they can lead to competitive advantages through cost reduction and product differentiation, ultimately creating value (Porter, 1980; Makadok,

2003). These definitions from the business context have only limited application to a policy context.

A common theme in these definitions is the emphasis on long-term impact. Strategic investments are typically seen as financial commitments made with a focus on creating long-term value, rather than seeking short-term returns. In essence, they involve allocating financial resources to projects, assets or initiatives aimed at achieving specific long-term objectives and strengthening an organisation's competitive edge.

Closer to the policy context is the concept of strategic investment funds. Divakaran *et al* (2022) defined such funds as having six attributes: i) they are initiated and (partially) capitalised by governments or quasi-sovereign institutions, ii) they invest primarily in unlisted assets and aim to achieve financial returns as well as pursue policy objectives, iii) they aim to mobilise co-investment from private investors, iv) they provide long-term, patient capital (mostly, but not exclusively, equity), v) they operate as professional fund managers seeking financial returns for their investors, and vi) they are investment funds established as separate legal structures. Looking at the EU's past efforts labelled as strategic investments, this definition is only a partial fit. In particular, achieving financial returns has not been a major objective of some of the main strategic investment initiatives in the EU.

3.1 European strategic investments: a working definition

Bringing together insights from the literature, and international and EU experiences with strategic investment, we define 'European strategic investments' (ESIs) as follows:

Investments, defined as gross fixed capital formation, carried out at the national or EU level are ESIs if they are consistent with the EU's long-term objectives and priorities[7].

The term 'strategic' must provide a rationale for prioritising investments and therefore the order in which long-term objectives are pursued. European strategic investments can be financed by the private sector, by EU countries or with EU financing. Therefore we supplement our definition with:

The decision to (co-)finance some of these ESIs at the EU level additionally requires that those investments are European public goods (EPGs). This means that there is added value to be had by pursuing investment at the EU level instead of solely at member-state level.

Not all European public goods are investments as some might refer to consumption, for example, common procurement of vaccines. Equally, not all investments that are EPGs are necessarily strategic, in other words, of the highest priority.

In this paper, we only focus on ESIs that merit EU financing according to the thinking just described. However, the objective is to encourage the participation of both the private sector and member-state governments. The remainder of this section discusses the concepts of EPGs and 'strategic' in more detail.

3.1.1 What are European public goods (EPGs)?

A starting point for the provision of any public good is the presence of a market failure that prevents the private sector from taking up a specific economic activity. In the presence of externalities, a good or service either will not be provided or will be underprovided by the markets. For EPGs, there is also a failure at the national level, in that a good or service will not be provided or will be underprovided if EU countries are left to provide for it individually.

The concept of EPGs encompasses the concept of additionality that is cited in the regulations that underpin many EU investment instruments. Additionality means that EU financing does not displace financing from

7 We follow the definition of gross fixed capital formation as provided in the European system of accounts (ESA 2010, paras 3.124-3.138). The performance of R&D that gives rise to new intellectual property products is classified as capital under ESA 2010. For more detailed information on R&D measure in ESA 2010 see Eurostat (2014).

any other source. In other words, the additionality principle states that the project would not be realised, or not to the same extent, without EU financial support. Importantly, efficiency gains such as shorter delivery times or lower cost can also satisfy the additionality principle.

Fuest and Pisani-Ferry (2019) justified the provision of a public good at the EU level when the benefits of doing that exceed the benefits of providing it at member-state level. Such added value could come from economies of scale, cross-border spillovers and similarity in country preferences and interests. Efficiency gains at the EU level would come either through cross-border spillovers or through cost-savings arising from economies of scale if a good is financed at the EU level rather than separately by each country. Buti *et al* (2023) argued that providing EPGs could strengthen cohesion across countries and, therefore, also benefit the EU as a political entity.

Since the COVID-19 pandemic crisis and then the energy crisis following the Russian invasion of Ukraine, the discussion on market failures has broadened to include not only the under-provision of a good or a service, but also the issue of underinvestment in resilience (Grossman *et al*, 2023). The idea here is that firms themselves might be individually sufficiently diversified in how they organise their supply chains, for example, but sectors might not. This could make a sector vulnerable and could, if economically systemic, pose a significant risk to a whole country's 'business continuity'. Public intervention is then justified as a way of internalising this systemic vulnerability. The rationale suggests that if efficiency gains are achievable at the EU level, say because of cross-border spillovers, conducting this public intervention at the EU level is most fitting. An example of such a vulnerability that unravelled was relying entirely on imports for the provision of face masks at the start of the pandemic, a good that was critical for safeguarding public health.

The question then is, what public goods can achieve efficiency gains if provided at the EU level? Buti *et al* (2023) identified six areas where EPGs exist: digital transition, green transition and energy, social transition, raw materials, security and defence, and public health. These public goods could include both investment (for example in infrastructure) and consumption (as the joint purchase of face masks), or could require joint action at EU level (for example procurement). In our definition of European strategic investments that are eligible for EU financing, we thus only include EPGs that refer to investments.

3.1.2 When is an investment strategic?

A common theme that underpins all definitions of strategic investment is the need to respond to long-term objectives. However, long-term investment has been challenged in the past 15 years with the world economy hit by extreme shocks that originated in very different geographies and parts of the economy. Extreme events now occur seemingly more often, and it is no longer safe to assume that similarly severe shocks will not continue to occur. A financial crisis, followed by a pandemic and more recently the Russian invasion of Ukraine that has forced the EU to reconfigure its energy relationships, all in the space of 15 years, has meant that investments have had to be delayed or re-prioritised to deal with urgent issues.

In response to these three extreme shocks, the EU has had to redefine its priorities. The financial crises required the EU to invest in strengthening its institutional power to monitor and safeguard its banking sector. The pandemic required protecting the economic value of households and firms, prioritising the financing of critical goods such as vaccines and reassessing the length of international supply chains. The energy crisis has forced the EU to change its energy mix and rethink how it can secure its energy supply. Arguably, some of the investments made in fossil fuels in the EU to ensure energy security (such as in liquid national gas terminals or the re-opening of coal mines) can be understood as an example of reprioritising the objective of energy security above climate objectives, at least in the short run. No one could doubt that such investments were of strategic relevance to the EU's interests.

Nevertheless, adhering to long-term objectives remains crucial in the process of identifying strategic investments. The challenge for policymakers in identifying and pursuing ESIs is to navigate the high levels of uncertainty present while remaining consistent with a long-term vision.

3.2 Examples of European strategic investments

A non-exhaustive list of projects that are ESIs potentially qualifying for EU financial support under our definition would include[8]:

Energy infrastructure and projects boosting energy efficiency, especially cross-border projects. These include power plants, power grids and energy-storage facilities. There is a strong case for EU action since reaching the EU's climate goals depends strongly on the European energy mix and the infrastructure to transfer energy across the Union. The actions of a single country will benefit or harm the global climate, and therefore have direct implications for other EU countries. Projects with a direct cross-border element, such as cross-border grids or grid interconnectors, could particularly benefit from EU action. While not necessarily constituting infrastructure, projects to boost energy efficiency, such as the refurbishment of buildings, would also qualify as being of EU value added.

ICT infrastructure, especially cross-border projects. This category includes infrastructure needed to connect European citizens within and across borders. Examples would be the 5G rollout or the development of optical fibre networks. Fast internet connections are becoming increasingly important for European competitiveness. Ensuring the continuity of services across borders would benefit the EU as a whole and justify EU action.

Transport infrastructure, especially cross-border projects. This category includes projects that physically connect European citizens and goods, as well as connections with the rest of the world, for example, roads, railways and ports. EU support is justified particularly for cross-border projects or facilities on important European transport axes. Projects that aim to make transport more sustainable, such as electric-vehicle infrastructure or sustainable urban transport infrastructure, should also be considered.

Facilities enhancing economic security and resilience. Within this category are essential facilities that, if absent, would pose a threat to the EU's economic security and autonomy. An example of such critical industries would be critical raw materials or semiconductors. When it comes to economic security, the EU needs to consider strategic investments as part of the broader aim of diversifying its sources of supply. The objective is not to eliminate dependencies but to safeguard business continuity through a mix of international trade and domestic production.

Facilities and projects boosting innovation. Research and development infrastructure and projects with an expected significant impact on innovation in the EU would also qualify for EU financial support under the ESI programme. Innovation will be crucial to the EU's global competitiveness and economic growth. This category includes physical facilities and programmes supporting the EU's objective to be a global leader in innovation, such as research hubs and R&D projects in strategic sectors. This group could also include social infrastructure projects important for citizens' welfare, such as research hospitals and medical research facilities.

4 EU programmes to finance long-term objectives

This section focuses on the EU's approach to long-term investment. We develop a taxonomy of the EU's public investment instruments and initiatives and examine the outcomes in terms of private capital mobilisation.

4.1 Taxonomy of EU public investment instruments and initiatives

We have identified 24 public investment initiatives implemented by the EU that are relevant to our study. We discuss the six largest and most important initiatives in more detail: the Recovery and Resilience Facility (RRF), REPowerEU, the European Regional Development Fund (ERDF) and the Cohesion Fund (sum-

8 Our examples are partially based on Buti *et al* (2023) and Pisani-Ferry *et al* (2023).

marised in a single item because they share the same EU regulation), Horizon Europe, the European Fund for Strategic Investments (EFSI), and InvestEU. We focus on these programmes because of their size and relevance to the concept of strategic investment in the EU.

We describe here briefly the purpose of each of these programmes and include a detailed taxonomy of all EU initiatives in Appendices 2 and 3[9].

1. The RRF, created in 2020, provides €723.8 billion in grants and loans to support reforms and investments in EU countries. It is the centrepiece of NGEU, a temporary recovery instrument to support the economic recovery from the COVID-19 pandemic and to build a greener, more digital and more resilient future for the EU. NGEU is worth €806.9 billion as of 2023 and is scheduled to operate from 2020 to 2026[10].
2. The related REPowerEU initiative was put together to help deal with the energy crisis following the Russian invasion of Ukraine in 2022. It aims to facilitate an affordable phase-out of Russian gas by 2027 and was funded by the €225 billion at the time still available in the loan component of the RRF that had not been claimed by member states. To support REPowerEU, the financial envelope was increased with €20 billion in new grants. These grants will be financed through the frontloaded sale of emissions trading system (ETS) allowances and the resources of the Innovation Fund[11], to be partly replenished through the Market Stability Reserve[12]. Additionally, EU countries have the option to voluntarily transfer €5.4 billion of funds from the Brexit Adjustment Reserve[13] to the RRF to finance REPowerEU measures. This comes on top of the existing transfer possibilities of 5 percent from the cohesion policy funds[14] (up to €17.9 billion).
3. The ERDF and Cohesion Fund, with a total budget of €274 billion between 2021-2027, are dedicated to reinforcing economic, social and territorial cohesion within the EU.
4. Horizon Europe, with a total budget of €95.5 billion, is the EU's primary funding programme for research and innovation. It will be implemented in the period between 2021-2027.
5. The EFSI is the main vehicle of the investment plan for Europe (also known as the 'Juncker Plan'), created in 2015 to boost competitiveness and growth by helping unlock European Investment Bank financing for economically viable projects that would normally have been considered too risky for EIB participation. It pledged €33.5 billion and aimed to raise €500 billion by 2020 (a goal that was achieved; see section 4.2).
6. Finally, InvestEU the successor to the Juncker Plan, was created in 2021. Just like its predecessor it aims to enhance EU competitiveness, innovation, sustainability and social cohesion. It has pledged €26.2 billion and aims to raise €372 billion in investments.

The EU regulations underlying each of these instruments define the projects eligible for investment in terms of objectives rather than sectors. These objectives are typically very broad and therefore often overlap between programmes. Projects enhancing the competitiveness, socio-economic convergence and cohesion of the Union, particularly in the realms of innovation and digitisation, are covered by all six

9 The reported figures in some cases include investment spending and funding for non-investment activities, when no breakdown was available.
10 In addition to the €723.8 billion under the RRF, NGEU contributes to other programmes including REACT-EU, InvestEU, the Just Transition Fund, RescEU and the European Agricultural Fund for Rural Development (EAFRD).
11 The Innovation Fund, funded by emissions trading system (ETS) revenues, supports low-carbon technologies and impactful projects in Europe for significant emission and greenhouse-gas reductions.
12 The Market Stability Reserve is a mechanism intended to tackle excessive surpluses of EU ETS allowances and to improve the system's resilience to major shocks by adjusting the supply of allowances to be auctioned.
13 The Brexit Adjustment Reserve supports EU countries negatively affected by Brexit, with a strong focus on those most affected.
14 The cohesion policy funds encompass the European Regional Development Fund (ERDF), Cohesion Fund, European Social Fund Plus (ESF+), and Just Transition Fund (JTF).

instruments. The same is true for projects fostering sustainability, inclusiveness in the Union's economic growth and social resilience, including education, social infrastructure and training programmes. All initiatives also aim at increasing access to finance for small and medium and mid-cap companies. Finally, meeting the sustainability and climate EU objectives figure prominently in each initiative. Importantly, the regulations underlying all these recent initiatives, with a specific exemption concerning immediate energy security aims in REPowerEU and Horizon Europe, include a 'do no significant harm' clause, meaning that projects financed under these programmes cannot go against EU environmental objectives.

Programmes are managed and governed by different entities, but any given project can qualify for several of these programmes. Programmes are also targeted at different entities. For example, InvestEU funding is targeted at projects, while funding from the Cohesion Fund is disbursed to regions. Streamlining the number of initiatives could yield efficiency gains for strategic investment at the EU level.

Table 1: Shortened taxonomy of the main investment initiatives at EU level

Name	Time	Budget	Source of funding	Instruments	Capital mobilisation target (€ billions)
RRF	2021-2026	723.8 (which includes most of REPowerEU)	• Dedicated bonds (NGEU)	• Loans • Grants	-
REPowerEU	2022-2026	300 (mainly from RRF with only 20 billion being new grants)	• RRF • ETS allowances • Brexit Adjustment reserve • Cohesion Funds	• Loans • Grants	-
ERDF/Cohesion Fund	2021-2027	274	• EU budget	• Grants	-
Horizon Europe	2021-2027	95.5	• EU budget • NGEU	• Mainly grants	-
EFSI	2015-2020	33.5	• EU budget guarantee • EIB resources	• Credit enhancement (intermediate loans, subordinated loans, guarantees) • Loans • Equity • Venture debt	500
InvestEU Fund	2021-2027	26.2	• EU budget guarantee	• Credit enhancement (intermediate loans, subordinated loans, guarantees) • Loans • Equity • Venture debt	372

Source: Bruegel. Note: RepowerEU funds are for the most part from the unclaimed funds in the RRF and are therefore not new money.

Two main takeaways emerge from Table 1.

The first is that there are two sources of funding for these programmes: the EU budget (MFF, either through direct funding or providing a guarantee) or funds raised through borrowing in the context of NGEU. Long-standing investment programmes that have been present in the EU budget for several political cycles, such as Horizon or predecessors of the ERDF or Cohesion Fund, are mainly funded with resources from the EU budget. The RRF (and REPowerEU) are funded through an issuance of EU debt in capital markets. NGEU, created during the pandemic, was remarkable for two reasons: first, it increased EU spending

capacity by 75 percent; second, it was financed by the issuance of debt. The EU had issued small levels of debt in the past to finance loans. It was the first time, however, that it issued such high levels of debt and that it issued debt to fund grants to member states. It is worth noting that a big part of the loan component of the RRF was not taken up by many countries at the start of the RRF, even if for some countries the interest rate charged under the RRF was lower than the market rate. Subsequently, the existence of this underutilised pot allowed the money to be repurposed to deal with energy security under REPowerEU. EFSI and the InvestEU Fund are funded through a more recent financial structure — a guarantee from the EU budget.

The idea of a guarantee backed by the EU budget was born against the background of limited EU resources to spur investment when EFSI was designed (Claeys, 2015). Using the guarantee to absorb potential losses could attract private investors to projects that are considered too risky without the guarantee. EFSI is one of the few programmes for which *ex-post* evaluation is possible since it started in 2015. Its target of mobilising over €500 billion based on €33.5 billion of resources would result in a target multiplier of over 15[15]. According to EIB analysis, this target was achieved (Wilkinson *et al*, 2022). Therefore, the guarantee seems to have fulfilled its purpose. However, as noted by Claeys (2015), the programme would only have been truly successful if it unlocked financing for projects that would not have been financed otherwise. Claeys and Leandro (2016) cast some doubt on this issue for the projects financed by EFSI in its first year. The EIB acknowledged that it cannot verify that all financed projects would not have been financed without its support (Wilkinson *et al*, 2022). Only EFSI and the InvestEU Fund set explicit targets for mobilising private investment. Additionally, the Horizon Europe regulation mentions maximising the mobilisation of private capital where possible. Finally, the RRF regulation mentions mobilisation of private capital, but rather as an additional benefit than an objective in itself.

When EFSI was announced, it was uncertain whether the EU budget guarantee would truly change the tendency of the EIB to invest in relatively low-risk assets (Claeys, 2015). According to the EIB, EFSI altered the riskiness of its portfolio with EFSI projects being on average riskier than other projects financed by the EIB. However, as of 2022, the cumulative number of guarantee calls was modest, at approximately €184 million. This relatively low amount could suggest that a guarantee from the EU is enough to unlock financing for most projects executed under EFSI, without significantly increasing the burden on the EU budget. On the other hand, the low default rate of projects could simply suggest that the projects were not very risky to begin with, and that the EU budget guarantee has not led the EIB to invest in significantly riskier projects. In this regard, it should be noted that the EIB has a fiduciary duty towards the EU budget with regards to operations under the budget guarantee, and therefore a low default rate should be seen as positive.

The second takeaway from Table 1 is that programmes differ regarding the financial instruments used to finance projects of interest. The programmes funded by the EU budget or bond issuance (RRF, REPowerEU, Horizon Europe, ERDF and the Cohesion Fund) mainly use loans and grants. The programmes funded by an EU guarantee and managed by the EIB use loans, equity, venture debt and credit-enhancement instruments. EFSI and InvestEU reflect a broader spectrum of capital market instruments. Credit-enhancement products in particular can be suitable for financing infrastructure projects (OECD, 2021). These products transfer risk from investors to the EIB (backed by the EU budget) and can reduce the cost of financing while attracting additional investors[16]. Diversifying the range of financial instruments available to projects and companies is important for optimising resources and adapting the financing structure to project needs.

Some of the lessons learned from EFSI were embedded in the design of its successor, InvestEU. For example, under the EFSI regulation, the only implementing partner for financing projects was the EIB. A side-effect of this was that only relatively large projects were eligible for EFSI financing. Under InvestEU, the range of implementing partners was extended to local institutions.

15 See section 4.2 for a more detailed discussion on leveraging private investment under EFSI and InvestEU.
16 See section 4.2 for additional information on the impact of EFSI financing operations.

The RRF required member states to prepare Recovery and Resilience Plans (RRPs) that detail national programmes of reforms and investments over the RRF period (up to 2026). Of the plan's total allocation, 37 percent and 20 percent should be allocated to the climate and digital objectives, respectively. RRPs have been assessed by the European Commission and endorsed by the Council. The assessments comprise development of two documents, a Council Implementing Decision (CID), and a staff working document (SWD). Milestones and targets are associated with each reform/investment (and detailed in the CID). The Commission disburses the funds after achievement of the pre-agreed milestones and targets at each payment request. Disbursement of funds is thus conditional on reaching milestones and targets. The RRF experience will yield valuable lessons on the viability of making funding available to member states for strategic investments in combination with implementing structural reforms. At the outset, however, while the grant component of the RRF was taken up by all countries, only a limited number of countries took up the loan component in the beginning[17] (Demertzis, 2022). This meant there were funds available that could be redirected to REPowerEU. Taking into account the latest requests at time of writing, take-up of the total loan component of the RRF (€385.8 billion) now amounts to €292.6 (or 76 percent). Some of the latest loan requests are still subject to formal approval[18].

Member-state performance in the context of the RRF remains to be evaluated. The RRF is a performance-based programme, in the sense that the disbursement of funds is conditional on countries achieving milestones and targets. But Darvas *et al* (2023a) argued that Article (2) of the regulation defines 'milestones and targets' as "*measures of progress towards the achievement of a reform or an investment*". The expression "*measures of progress towards*" thus indicates a process, not necessarily the achievement of results. This has also been observed by the European Court of Auditors (2023). Therefore, a clearer definition of 'performance-based' is needed and should be based on outputs and results. There is also discussion on whether the milestones and targets set are sufficiently ambitious. As mentioned by Corti *et al* (2023), Italy will successfully fulfil its milestones and targets but will likely not achieve some of the objectives of the measures included in its RRP, including reducing regional and local inequalities in the provision of employment and childcare services. This could indicate that milestones and targets defined under RRF are too easy to achieve and not necessarily what the programme aims for.

Last, Claeys *et al* (2021) claimed that the temporary nature of NGEU borrowing, and its relatively small scale compared to borrowing by national governments, increased the cost of debt. Permanent EU borrowing would be more widely accepted by financial investors and could have the added benefit of creating a true European safe asset.

In addition to providing financing for projects, EU investment initiatives have also created auxiliary services to facilitate investments. For example, the European Investment Advisory Hub, established in 2015 alongside EFSI, aimed to enhance investment after the economic crisis. The Hub provides advisory services to project promoters to support investment in the real economy. The Hub's objective is described (in Regulation 2015/2017) as building on existing EIB and Commission advisory services in order *"to provide advisory support for the identification, preparation and development of investment projects and act as a single technical advisory hub for project financing within the EU"*. However, a report from the European Court of Auditors (2020) highlighted concerns. The Hub was deemed a "*demand-driven*" tool without sufficient prior assessment of its advisory needs, potential demand or required resources. While it satisfactorily offered tailored advisory services, it lacked a clear strategy for targeting support where it could maximise value. Some beneficiaries questioned the uniqueness of Hub support compared to other advisory sources. Moreover, only over 1 percent of EFSI-supported financial operations benefited from Hub assignments.

Additionally, the Hub lacked proper procedures to follow up on investments resulting from its assign-

17 Maria Demertzis, 'Next Generation EU: an underused facility?' *Cyprus Mail*, 19 November 2022, https://cyprus-mail.com/2022/11/19/next-generation-eu-an-underused-facility/.

18 See Council of the EU press release of 8 December 2023, 'Recovery fund: Council greenlights amended national plans for 13 member states', https://www.consilium.europa.eu/en/press/press-releases/2023/12/08/recovery-fund-council-greenlights-amended-national-plans-for-13-member-states/.

ments, hindering performance evaluation. By the end of 2018, the Hub had completed too few assignments to contribute significantly to boosting investment. These findings were considered in the design of its successor, the InvestEU Advisory Hub. This Hub has replaced thirteen[19] centrally managed advisory programmes and is the central entry point for advisory and technical assistance requests. InvestEU Advisory Hub partners provide project advice, capacity building and market development support to promoters and intermediaries. The Advisory Hub is aligned with the objectives of the InvestEU programme.

4.2 Leveraging private capital

One of the goals of past ESI initiatives was leveraging private capital. The two largest initiatives, the EFSI and InvestEU, have aimed explicitly at maximising the mobilisation of private capital. EU policymakers acknowledge that the investment volume needed to achieve long-term political objectives will need to be largely supplied by the private sector (European Commission, 2023a). Therefore, future efforts for ESI should also focus on maximising private-sector participation in investment projects where possible.

From a macroeconomic perspective, several studies document the positive effect of public investment on attracting private investment (Aschauer, 1989a; Abiad *et al*, 2016; Pereira, 2001; Brasili *et al*, 2023). Abiad *et al* (2016) showed that the effect is greater in times of economic slack and when public investment efficiency is high. Brasili *et al* (2023) showed a positive effect of local government investment on private investment, while evidence from Brueckner *et al* (2022) suggested that local governments are more efficient in crowding-in private investment than national governments. Focusing on public R&D support programmes, Azoulay *et al* (2019) and Moretti *et al* (2019) showed that public R&D spending crowds-in private R&D investment.

Turning to the experience of past and present EU strategic investment initiatives, such public efforts can mobilise private investment in four ways. First, a public sector entity can finance or secure the riskiest tranche of capital of an investment project that private investors are unwilling to take on, leaving them the less risky part. Second, public investment, notably in SMEs and mid-caps, can result in increased corporate investment. Third, having a large public institution with a good track record as part of the investor mix can enhance the credibility of a project. Fourth, public investment in important enablers such as infrastructure or financial support for R&D activities can mobilise private capital and improve the use and allocation of resources (European Investment Bank, 2022c).

Recent EU programmes offer insights related to the first point. EFSI achieved its goal of mobilising over €500 billion of investment, according to EIB estimates, using only €26 billion in EU budget guarantees and €7.5 billion of EIB own resources, resulting in a multiplier of over 15 (Wilkinson *et al*, 2022). Overall, the strategic investment programmes managed by the EIB have been successful in mobilising private investment using guarantees, loans, equity and quasi-equity instruments. However, it should be noted that most of the assessment of EFSI is based on analyses by the EIB itself.

The EIB's assessment of EFSI's activities yield some insight on how the multiplier of 15.75 was achieved. Some, though not all, project promoters that benefitted from EFSI support under its Infrastructure and Innovation Window (IIW) highlighted in particular that the EIB's involvement in their project attracted other investors. However, promoters indicated that in some instances, EFSI financing might have crowded-out financing from other investors (Wilkinson *et al*, 2022). A survey of EFSI partners also indicated that EFSI operations led to improved availability and conditions of financing for SMEs and mid-caps, notably through increased lending activity to such firms at better conditions (lower collateral, fees, interest rates) by partnering lending institutions. One in ten of respondents, however, reported that they could have obtained financing/guarantees at similar conditions from other sources without EFSI support. The EIB

19 Horizon 2020 (EE11 PDA), InnovFin Advisory, Connecting Europe Facility (CEF, through JASPERS), ELENA (European Local ENergy Assistance), European Investment Advisory Hub (EIAH), Employment and Social Innovation (EaSI) Technical Assistance, Natural Capital Finance Facility (NCFF) support facility, Smart Specialisation Platform for Industrial modern, CEF Programme Support Actions, European Energy Efficiency Fund (EEEF) technical assistance, City Facility, Private Finance for Energy Efficiency (PF4EE) Expert Support Facility, Islands Facility.

describes this level of redundancy as acceptable (Wilkinson *et al*, 2022).

On the second point (increased corporate investment), given the relevance of SMEs in the European economy, the role of public investment in helping them increase their investments is particularly important. EIB analyses show that their loans translated to better financing conditions for SMEs and mid-caps, ultimately resulting in increased employment, investment and stronger growth of supported firms. EIB (2022a) argued that their venture loans, which typically provide liquidity between rounds of raising equity in fast-growing firms, have helped lower financing costs and have crowded-in additional debt. The EIB estimates that alleviating financing constraints for EU firms could unlock €120 billion of corporate investment annually. Similarly, better infrastructure can lower the cost of doing business for firms and increase output.

On the third point, in addition to directly affecting the financing conditions for a project or company, EIB analyses indicate that EIB investment also has a reputational effect that can attract private investors. Finally, public investment in infrastructure or research activities can generate additional private investment and improve productivity and the allocation of capital. European Investment Bank (2022c) projected that EFSI investment operations will have long-term positive effects on the EU economy, predominantly because of such structural effects.

The EIB makes use of financial instruments other than traditional equity and loans that can unlock private sector capital. Such instruments include intermediated loans, low-interest loans, credit enhancement, guarantees and venture debt. An important question is which financial instrument is most effective at crowding-in private investment.

Credit-enhancement products in particular have the clear potential to provide a high multiplier, ie mobilising considerable investment by using a comparatively small amount of public resources. European capital markets are not as developed as in the United States. Consequently, European companies have greater difficulty accessing risk capital than US counterparts. Furthermore, financing conditions for European firms might be deteriorating. The EIB Investment Survey (European Investment Bank, 2023b) indicated that the share of EU firms dissatisfied with the cost of finance in the EU increased from 5 percent in 2022 to more than 14 percent in 2023. These factors increase the potential impact of public guarantees. In the future, research comparing different instruments in terms of cost and accessibility would be valuable in designing strategic investment programmes.

On the equity side, large infrastructure projects sometimes require an equity or quasi-equity buffer to make the project interesting for private investors. The public sector can play an important role in de-risking large-scale projects to attract private investors, including institutional investors such as pension funds and insurance companies. The EFSI and InvestEU experiences show that equity and quasi-equity provided by the EIB has a positive effect for SMEs and mid-caps. Future ESI initiatives should explore the potential of such instruments to provide effective de-risking to projects.

5 Public investment management

5.1 Framework and examples

Improving the management of public investment is crucial in boosting the efficacy of public capital expenditure. Recent estimates indicate that roughly 30 percent of resources are lost in the process of managing public investment (Baum *et al*, 2020). Governments exhibit a relatively high level of inefficiency in deploying public investment, and Rajaram *et al* (2014) emphasised the range of reasons behind this phenomenon. The complexity of public investment projects, involving prolonged processes and presenting challenges in planning, coordination, financing, procurement and contract implementation, often results in cost overruns and delayed completion, surpassing even meticulously planned estimates. Baum *et al* (2020) estimated that inefficiencies could be halved through the enhancement of public investment practices.

Efficient public investment management across levels of government – regional, national and EU-level – is crucial for designing the future of ESIs. Insights from the public investment management can inform the ESI governance framework. Based on this literature, we have identified four pillars for a well-functioning public investment system: i) planning, ii) budgeting, iii) implementation and monitoring, and iv) *ex-post* evaluation. Underlying these four pillars are the '12 Principles for Action' for effective public investment management across levels of government, published by the OECD in 2014 (OECD, 2014; OECD, 2019).

In 2015, the International Monetary Fund proposed its own framework to assess the quality of public investment management practices – Public Investment Management Assessment (PIMA; IMF, 2015). The PIMA Framework focus is on the concrete planning of investments (with attention paid to coordination between the different policy levels), on allocating investment to the right project (based on transparent criteria and a long-term vision) and on implementing the selected projects within the set timeframe and within the planned budget. Finally, Manescu (2022) provided fresh insights into public investment practices within the EU. The key elements highlighted for an ideal public investment system across various stages, as highlighted by Manescu (2022) include: planning, appraisal and selection, budgeting, monitoring and implementation, *ex-post* reviews and assets registers.

We highlight four pillars to enhance a public investment system, within which we classified the 12 Principles of the OECD:

Table 2: Fours pillars of public investment management

Pillar 1: Planning	Pillar 2: Budgeting	Pillar 3: Implementation and monitoring	Pillar 4: *Ex-post* review
Principle 1: Develop an integrated investment strategy tailored to local factors	Principle 6: Mobilise private investors and financing institutions to diversify sources of funding and strengthen sub-national capacities	Principle 5: Engage with stakeholders throughout the investment cycle	Principle 7: Strengthen the proficiency of public officials and institutions engaged in public investment, particularly at the sub-national level
Principle 2: Adopt effective instruments for coordination across national and sub-national levels of government	Principle 9: Develop a fiscal framework aligned with investment objectives pursued	Principle 11: Promote transparency and strategic use of public procurement	Principle 8: Focus on results and promote learning from experience across levels of government
Principle 3: Coordinate horizontally among sub-national governments to invest at the relevant scale	Principle 10: Enforce sound and transparent financial management at all levels of government	Principle 12: Ensure quality and consistency in regulatory systems across levels of government	
Principle 4: Assess the long-term impacts and risks of potential projects upfront			

Source: Bruegel. Note: Principles from OECD.

5.1.1 Planning

Governments should formulate robust investment plans based on a comprehensive, long-term strategy. These plans should include deliverables, accurate cost estimates, an assessment of existing capital assets and identified needs. The objectives are to: i) design and implement investment strategies tailored to the specific locations they intend to benefit; ii) foster synergy and minimise conflicts between different sectoral strategies; and iii) encourage the production of data at the appropriate sub-national level to guide investment strategies and provide evidence for decision-making. While most EU countries have some form of strategic investment planning, the extent can vary. Some examples of clear, multi-year investment plans

can be found in the Netherlands (MIRT), Ireland (Project Ireland 2040) and Latvia (NDP27)[20].

Coordination between different entities involved in a public investment effort is an essential aspect of success. Neglecting this can lead to misallocation of resources. In the Netherlands, a good example is the Association of Dutch Municipalities (*Vereniging van Nederlandse Gemeenten*, VNG), which unites all municipalities, and the Association of Provinces (*Interprovinciaal Overleg*, IPO) which coordinates between sub-national administrative layers. In the UK, a Cities Policy Unit was created in 2011 with public, private, central and local stakeholders to help coordinate urban policy. The goal of the Cities Policy Unit is to work with cities and government to help cities create new ideas and turn the ideas into successful plans. In Italy, the Interministerial committee for economic planning and sustainable development (CIPESS) is an example of efforts to minimise conflicts between different sub-national governments. CIPESS is responsible for the coordination and horizontal integration of national policies, and for aligning Italy's economic policy with EU policies. Finally, France has the *Contrats de plan État-région* (CPER), operational since 1982, which are important tools in regional policy in terms of planning, governance and coordination.

5.1.2 Budgeting

The second pillar refers to the importance of establishing a well-designed, stable and transparent medium-term budgetary framework that will ensure reliable budgeting for public investment. The goal is to promote consistency between annual budget decisions and the multi-annual lifespan of investment projects. Additionally, involving private parties and financing institutions in investments can strengthen government capacity and bring expertise to projects, improving *ex-ante* assessment and achieving economies of scale and cost-effectiveness. Public-private partnerships (PPPs), enabled through innovative financing instruments, are ways of leveraging private capital that provides necessary scale and scope for investments.

The UK also utilises the Medium-Term Fiscal Framework (MTFF) to align budget preparation and public investment plans with fiscal policy. In France, key entities involved in public investment management include Bpifrance and Caisse des Dépôts et Consignations (CDC). Both institutions are tasked with investing in projects with policy goals and collaborating with the private sector.

5.1.3 Implementation and monitoring

Monitoring serves at least two related purposes: i) it can facilitate efficient capital allocation and, ii) it can identify potential problems early on and solicit remedial action. Good practices include the publication of monitoring reports, including reappraisal and termination options in project agreements, and defining and enforcing milestones. Implementation is facilitated by ensuring consistent regulatory frameworks across the different levels of government involved. Furthermore, public entities should engage with a project's stakeholders regularly throughout the investment cycle.

In France, the *Secrétariat général pour l'investissement* (SGPI) is responsible for ensuring the coherence and monitoring of the state's investment policy through the implementation of the France 2030 plan. It is involved in the decision-making processes related to contracts between the state and investment management entities, and coordinates the preparation of project specifications and monitors their alignment with government objectives. Moreover, it is responsible for the overall evaluation of investments, both before and after implementation. In the Netherlands, the Delta Programme represents a collaborative initiative involving the Ministry of Infrastructure and Environment, provinces, municipal councils and regional water authorities, working closely with social organisations and businesses. Established in 2010, its primary objectives are to safeguard the Netherlands from flooding and secure a sustainable freshwater supply for the next century. Active stakeholder engagement in the programme has resulted in tailored strategies and the commitment of various entities at both regional and national levels. Furthermore, the Rijkswaterstaat has a major role in managing the three major infrastructure networks: the road network, the

20 Detailed country case studies on the public investment management initiatives mentioned in this section and projects pursued can be found in Appendix 3.

waterway network and the water system. In the UK, to engage public, private and civil society stakeholders throughout the investment cycle, the government uses Local Strategic Partnerships (LSPs), which are non-statutory bodies that bring together different parts of the public, private, voluntary and community sectors working at local level. LSPs have no legal powers or resources of their own.

5.1.4 *Ex-post* reviews

Clearly defining the desired outcomes of public investments is of utmost importance. To achieve this, evaluation and monitoring criteria should be established during the initial phases of policy design. This is essential for allocating necessary resources and generating relevant data. Consequently, regular status and completion reports, and thorough *ex-post* reviews, become imperative to learn from past experiences. Additionally, fostering active information exchange and ongoing mutual learning among stakeholders engaged in public investment further enhances the effectiveness of the process. In the EU, *ex-post* reviews are common but sometimes restricted to a subset of projects. For example, in Ireland, the Public Spending Code requires all large capital projects and a proportion of other capital projects to undergo *ex-post* review, while in France a similar requirement is in place for the investments in the France 2030 plan.

Furthermore, in many EU countries public administrations often lack the required knowledge and skills needed for effective public investment management, resulting in significant barriers to investment. The European Investment Bank (2023a) identified, for example, the lack of available skills such as environmental planning and engineering expertise as significant factors hampering investment projects. Enhancing the capacity for public investment in public institutions across all levels of government is important to create an enabling environment. In Italy, the Basilicata region invested heavily in monitoring and evaluation to support decision-makers. The region has created a Public Investment Evaluation Unit (NVVIP), which is responsible for monitoring and evaluation, including through impact assessments, all public investments in the region, and for checking the consistency of strategic projects with respect to the regional development plan and the annual financial plan. In Ireland, the Irish Commercial Skills Academy (CSA) was setup in 2019 to offer training on best-practice approaches for effective delivery throughout the lifecycle of a project. Its aim is to enhance the skillsets of key spending departments and public sector bodies.

5.2 Public investment management and European strategic investment

The OECD principles serve as the fundamental basis for any public investment management system. However, when applied to ESIs, certain nuances emerge. For instance, Principle 2 necessitates effective coordination not only between levels of government within EU countries, but also between the EU and its member states. One plausible solution could be the establishment of dedicated agencies within each country that would be responsible for screening projects from that country and liaising with the EU institution responsible for project selection.

Infrastructure financing is highly complex and requires a specific set of skills and experience, not only to assess the viability and financing of a project, but also its long-term impact. In line with OECD Principle 4 (on assessment), it is important to include experts in the teams responsible for project appraisal and selection in member states and at EU level. A guiding principle should be value for money to maximise efficiency and the impact of EU funds, as well as to avoid duplication. Similarly, specific teams should be set up for project monitoring, and for maximising the use of technology for efficient monitoring.

The EU has a mixed track record in infrastructure planning. Effective planning is crucial to mitigate the risk of misallocating EU funds to poorly planned or poorly executed infrastructure projects – so called 'white elephants'. Misallocating societal resources is a financial burden for public institutions, and undermines public welfare. Large infrastructure projects often experience cost overruns coupled with shortcomings in expected benefits[21], highlighting the importance of sound planning practices. The EU can play an important role in ensuring efficient allocation of funds for investment by planning and designing projects well.

21 For an extensive discussion of large project management see Flyvbjerg and Gardner (2023).

While many infrastructure projects that benefit from EU funds, for example under EFSI and InvestEU, have been successful, EU resources have also been allocated to projects that were not well planned or executed. For example, the European Court of Auditors (ECA, 2014) detailed flaws in EU infrastructure planning[22], notably in relation to airports. EU financing was used to build airports that were too big or too close to each other. The Court noted that EU financing operations were insufficiently supervised by the European Commission, leading to over-capacity and poor value for money. The UK experience can also be instructive. The DfT (2015) value for money framework indicates the department's approach to assessing value for money and requires a clear value-for-money case for any proposal involving public resources. Such a principle should also be applied to ESIs. It is important to not repeat the same mistakes in the future, and rather work towards replicating successful practices.

The EU should carry out a systematic review to establish a set of best practices based on successful projects. It should also recognise and assess the projects that have failed to deliver on their promises and aim to learn from those mistakes. Better control over the process can be aided by reducing the number of institutions responsible for disbursing funds for ESIs and by investing in capacity building. A challenge particular to the EU is the extensive fragmentation of planning and of existing network infrastructure. Infrastructure is mostly planned at member-state level. Connecting network infrastructures originally built by different entities can be challenging within a single country (Helm, 2023), and this challenge is only amplified when striving to connect networks across national borders within the EU. The EU's ability to support such projects is not limited to financing either. A more coordinated approach to infrastructure planning and harmonisation of regulatory frameworks between EU countries could yield significant benefits (Dermine *et al*, 2023). The EU is uniquely positioned to take on this responsibility.

6 Takeaways from the EU's experience

We summarise a few takeaways from the EU's experience in pursuing long-term objectives.

Europe faces large investment gaps. We have identified significant investment gaps to meet the two major transitions that will ensure that the EU remains competitive globally. Several studies have argued that the public sector will have a major role to play in in financing these gaps, alongside the private sector. We also argue that those objectives that are of strategic relevance and refer to European public goods should be financed at EU level.

Lack of continuity. The EU has created several investment programmes (section 4). Some important current instruments – InvestEU and the RRF – have limited lifespans (expiring in 2027 and 2026 respectively) and are not expected to be repeated when they expire. The finite nature of these programmes is not conducive to an investment framework that pursues long-term objectives. This 'stop-and-go' culture is not in line with the long-term nature of strategic investments and is detrimental to planning for the public and private sectors alike. Rather than a sequence of programmes, therefore, the EU needs a long-term financing framework for strategic investments beyond the current planning horizon of approximately five years.

Need for simplification and capacity building. Current and past programmes have overlapping objectives that create information frictions. There is therefore a need to streamline the objectives of each programme to avoid complexity and help match programmes to investors. Experience with the RRF and at member-state level has shown the importance of coordination across levels of government regarding planning of strategic investment. Capacity building at all levels of government is also crucial to ensure a steady flow of high-quality projects and efficient implementation. EIB analyses show that local authorities often lack the capacity for implementation of investment programmes.

22 There are also country examples capturing the contradiction between the original purpose of EU funding and actual social benefits. See Toth *et al* (2023) for details on Hungary.

Coordination. Some of the country-level examples show that there is value in coordinating public investment management between different levels of government, both in terms of identifying good projects and monitoring progress. Carrying this over to the EU level is crucial, as the EU adds an extra layer of governance and therefore increases the level of complexity.

Do no significant harm. The 'do no significant harm' principle, as set out in EU regulations, refers only to environmental objectives. No project pursued should contradict environmental targets. We go a step further and suggest that strategic investment co-financed by the EU's ESI programmes should not be inconsistent with any long-term objectives, including environmental goals. While events may require objectives to be reprioritised, investments should not contradict single or multiple long-term objectives. There is a great need therefore to balance carefully the multiple objectives over time.

Evaluation based on outcomes. The RRF has shown the importance of robust and well-defined performance indicators. However, evaluation should be based on outputs and results. Milestones and targets should be observable metrics of results and not only of progress made. For instance, in the case of a power plant, a result indicator could be a predetermined level of energy production to be achieved by a specified year.

Lack of standardisation. There is a lack of standardisation in reporting and planning public investment projects in the EU. The EU should create and promote the use of templates for similar investment projects. A single reporting procedure would reduce the administrative burden and enable investment by reducing red tape.

Financing instruments to tackle big risks and incentivise reform. We believe two issues are important when setting up investment-finance programmes:

1. Absorbing risk. As a result of the EU not having deep capital markets, sufficient 'risky' capital is not available. Both the climate and digital transitions require accepting high levels of risk, which banks, the traditional funders of investment in Europe, cannot take. Public authorities have a major role to play to fill in this gap. By providing carefully designed public credit-enhancement instruments backed by, for example, public budget guarantees, the public sector will be insuring against the riskiest part of any given investment, thereby releasing private funds to cover the rest. Equity and quasi-equity instruments should also be used for efficient de-risking to attract private investors.
2. Incentivise reforms. The combination of a grant and loan programme, as implemented under the RRF, has interesting features worth replicating. The loan component increased the total envelope of funds available. This would allow a few countries to borrow below market prices. The link to reforms provided the right incentives to accelerate a number of structural measures.

Sources of EU funding. European funding so far has come from two sources: 1) the Multiannual Financial Framework (MFF), or long-EU term budget that covers a seven-year period (€1074 billion at 2018 prices for 2021-2028); 2) through debt issuance at EU level (€750 billion at 2018 prices for 2021-2026). When it comes to funding, there are three issues to resolve.

i. Lack of sufficient own resources. As part of repaying the borrowing for common debt issued under the NGEU programme, the EU is at time of writing discussing how it can increase its 'own resources'. Making progress on this issue can also be important for ensuring dedicated resources for strategic investment at EU level.
ii. The question of fiscal capacity. The issue of fiscal resources is crucial. Many EU countries have high debt levels and, with the return to the EU fiscal rules expected at the start of 2024, we expect that not all countries will be able to undertake investments at the same speed and level. The fiscal space is very different in different countries and countries will also be impacted differently by EU fiscal rule constraints from January 2024. The EU has an important role to play in supporting countries in strategic investment. The RRF is a prime example that allowed countries to continue to invest in the green and digital transition while releasing funds to deal with the pandemic crisis. The urgency

of advancing with some of the long-term goals dictates that there should be coordination between countries on how to make progress in ways that do not jeopardise achievement of the goals. This coordination need is at the heart of the rationale of pursuing certain ESIs at the EU level.

iii. EU debt issuance has not benefitted from scale or quality. The experience of RRF debt issuance has shown that the EU has not benefitted as much as it could have done (Claeys *et al*, 2021). If the EU establishes a stream of 'new' own resources, then it can credibly issue long-term debt and therefore benefit from its scale and the market demand for high-quality debt. ESIs are the prime candidate to be financed by common and intertemporal means, such as EU-issued debt.

7 Conclusions and policy recommendations for ESIs beyond 2026

In this paper, we have defined European strategic investments and discussed how such investments can be supported with EU resources. Investments that are of strategic relevance to the EU are those that are in line with the priorities set and are consistent with the EU's long-term objectives. Countries, private firms and the EU itself must finance the twin transitions, among other things, that EU societies will undergo over the next decades. The EU's involvement in directly financing some of these strategic investments is desirable when there is European value added, such as efficiency gains and cross-border coordination, and when the additionality criterion is satisfied.

The green transition is among the most important strategic objectives that the EU must pursue. Pisani-Ferry *et al* (2023) pointed to the huge annual investment needs to achieve a 55 percent emissions reduction by 2030 compared to 1990. The EU's role in helping countries achieve that is crucial. Pisani-Ferry *et al* (2023) advocated for an EU green investment plan to match the NextGenerationEU resources after NGEU ends in 2026. As a prime example of a European (and indeed global) public good, unless all countries advance at a minimum common speed, the EU will not meet its climate objectives. The EU can play an important role in making sure that the necessary investments in energy and transport systems suggested by Pisani-Ferry *et al* (2023) are done by all countries, while also safeguarding a fair transition.

Based also on the EU's experience with strategic investments so far, we make a number of recommendations, grouped into three categories: 1) how to repurpose existing funds and tools to tackle ESIs, 2) the role of the EIB in this process, and 3) issues beyond the EU funds currently available.

First, we discuss how to redirect or reform current tools to finance European strategic investments.

1. Create a dedicated long-term financing programme for ESIs. The pursuit of long-term objectives requires stable and predictable financing resources. A possible source of funding could be the EU budget or guarantees backed by the EU budget, building on the experiences with EFSI and InvestEU. The programme should at the very least be a stable component of the MFF, to facilitate planning for implementing partners, public or private. This fund should be accompanied by a permanent advisory facility following the lessons learned from the InvestEU Hub and its predecessors. A clear definition of European strategic investments should be established that defines a set of projects potentially eligible for financing from ESI resources.
2. Streamline and centralise. Based on prior experience, there are gains to be had by streamlining existing programmes for financing infrastructure, R&D and SMEs in the EU. We recommend centralising the management and funding of these programmes, where possible. This will give a better overview of financing opportunities for implementing partners, reduce redundancies (such as project evaluation by several different EU institutions) and simplify the financing process. One central institution in each member state should liaise with the EU on ESI projects. Such a structure would have the added benefit of a single contact

point for private-sector entities (particularly infrastructure promoters and SMEs) interested in applying for ESI financing. ESI initiatives should also collaborate with local implementing partners, where possible and useful.

3. Link financing to reform. ESI programmes should encourage reform by providing the right incentives. The RRF experience has shown the potential for enabling change if a grant provided is made conditional on reform. ESI financing from the EU to its member states should be made conditional on implementing policies enabling strategic investment and, more generally, addressing obstacles to investment. Examples include the reduction of red tape in permitting procedures related to large infrastructure projects, or increasing the capacity of public authorities to assess strategic projects. Capital for strategic investments can be a strong incentive for EU countries to undertake such reforms. Importantly, any such reforms should be democratically legitimate in the member state concerned.
4. Second, we believe that the EIB can play a crucial role in identifying, selecting, financing and monitoring strategic investments in the EU.
5. A central role for the EIB. The EIB could take on an important role in the ESI financing programme by evaluating and selecting projects applying for ESI financing, building on its expertise as the central implementing institutions of the EFSI and InvestEU. The EIB would be well placed to assess from a technical and economic point of view the projects brought to it by national coordinating institutions and other implementing partners.
6. Use the entire range of financial instruments to finance risks. ESI programmes should aim to maximise private sector investment by committing to finance the riskiest components of any investment project. To achieve this goal, the ESI Fund should make use of the full range of financial instruments, including equity, quasi-equity, credit guarantees, debt and subordinated debt. ESIs can require complex and diverse financing structures. Therefore, it should be possible to adapt the financing structure on a case-by-case basis, choosing from a wide range of financial instruments. The mandate of the EIB and the ESI Fund should also allow development and use of new financial instruments in response to evolving market gaps.
7. Create a toolkit for identifying EU added value and additionality. As part of increasing the transparency and efficiency of EU investments, we recommend the creation of an explicit toolkit for the identification of EU value added. This will be used in the selection of projects and will have the purpose of demonstrating why a project is better financed at the EU level and to what end. Equally, clear tools and procedures should be developed to assess additionality in order to maximise the impact of EU resources. Member states should be encouraged to use the toolkit in their assessments of strategic investments.
8. Set milestones and evaluate outcomes with transparent metrics and focus on results. To be able to evaluate outcomes and results, well-defined milestones, outcomes and result indicators should be put in place for each project. These milestones should be based on outputs and results and not processes. Availability of the necessary tools and capacity to monitor projects continuously should be ensured. Third, in line with the aim of achieving long-term goals we offer a few recommendations that go beyond the EU's current budgetary structure and touch on necessary enablers for strategic investments.
9. Make progress with new own resources. The EU needs to make progress on increasing its own financial resources. If the EU has sufficient own sources of revenue, it can provide stable finance for ESIs, which can help avoid the stop-and-go tendency that has dogged investment programmes in the past. A clearly agreed framework for increased own resources would also enhance the EU's ability to issue debt to fund strategic investments. The intergenerational aspect of many strategic investments, in particular investments to achieve climate objectives, would justify the funding via long-term debt.
10. Standardise procedures for project planning and financing applications. The EU is uniquely positioned to promote standardisation and coordination of procedures for large-scale strategic investment projects. It should advocate the adoption of templates for similar projects across countries, and for uniformity in related procedures. Harmonised reporting would also facilitate *ex-post* assessments and the exchange of information.
11. Encourage other policies that enable ESIs. Several issues pertaining to regulation or policies will enable the promotion of ESIs. Investments in certain types of infrastructure and their operation require new sets

of skills. Acquiring them via upskilling or reskilling needs to be an integrated part of the process to achieve optimal outcomes. Similarly, the EU can also pursue certain activities as one, for example, procurement or coordinated regulation to facilitate the uptake of investments. The EU can also assist member states in improving national governance frameworks for strategic investment, building on best practices in the region, and maximise synergies between national strategic-investment programmes and ESI financing programmes. The reforms connected to ESI funding should promote this.

12. Promote the creation of a capital markets union. The scale of investment needed implies the private sector will need to play a very significant role. While we recommend that the EU picks up the riskiest parts of investments to encourage private-sector participation, EU funds can only go so far. The European economy lacks sources of capital more prepared to take on the risks of financing a future that is increasingly uncertain. The EU must make visible progress in encouraging the further development of capital markets and coordinate them at the EU level to exploit economies of scale. One possible way ahead would be to revive the market for securitisation and to continue the progress made in 2022 in terms of significant risk transfer by euro area banks[23]. Establishing the capital markets union would also simplify the framework for cross-border capital investment and could prove to be a powerful enabler.

23 For a recommendation on the issue of securitisation, see European Central Bank, 'A new high for significant risk transfer securitisations', *Supervision Newsletter,* 23 August 2023, https://www.bankingsupervision.europa.eu/press/publications/newsletter/2023/html/ssm.nl230816_1.en.html.

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Appendix 1: Taxonomy of EU Investment Initiatives

Table A1: Financial information on 24 EU investment initiatives

Name	Time	Budget (€ bns)	Source of funding	Instruments	Capital mobilisation target (€ bns)
NextGenerationEU	2021-2026	750	• Collective issuance of bonds	• Grants • Loans	-
RRF	2021-2026	723.8	• Dedicated bonds (NGEU)	• Grants • Loans	-
European Structural and Investment Funds	2014-2020	535	• EU budget	• Guarantees • Loans • Equity • Grants • Other risk sharing instruments	731
REPowerEU[24]	2022-2026	300	• Mainly RRF • Other EU funds	• Grants • Loans	-
ERDF/Cohesion Fund	2021-2027	274	• EU budget	• Grants	-
Horizon Europe	2021-2027	95.5	• EU budget • NGEU	• Mainly grants • But funding may be provided in any of the forms laid down in the Financial Regulation	-
European Social Fund Plus (ESF+)	2021-2027	99.3	• EU budget	• Mainly grants, prizes, procurement • But funding may be provided in any of the forms laid down in the Financial Regulation	-
Neighbourhood, Development and International Cooperation Instrument	2021-2027	79.5	• EU budget	• Mainly grants, prizes, procurement • But funding may be provided in any of the forms laid down in the Financial Regulation	-
REACT-EU	2021-2023	50.6	• NGEU	• Funding may be provided in any of the forms laid down in the Financial Regulation	
European Fund for Sustainable Development Plus	2021-2027	40	• EU budget guarantee	• Grants • Technical assistance • Guarantees • Equity • Blending operations worldwide	135
Connecting Europe Facility	2021-2027	33.71	• EU budget	• Grants • Procurement • Blending operation	-

24 See European Commission press release of 18 May 2022, 'Factsheet on Financing REPowerEU', https://ec.europa.eu/commission/presscorner/detail/en/fs_22_3135.

EFSI	2015-2020	33.5	• EU budget guarantee • EIB resources	• Credit enhancement (intermediate loans, subordinated loans, guarantees) • Loans • Equity • Venture debt	500
InvestEU Fund	2021-2027	26.2	• EU budget guarantee	• Credit enhancement (intermediate loans, subordinated loans, guarantees) • Loans • Equity • Venture debt	372
Just Transition Fund	2021-2027	17.5	• EU budget • External assigned revenues	• Funding may be provided in any of the forms laid down in the Financial Regulation	30
STEP	2021-	14.5	• EU budget	• Dispersed through different funds so will depend on the relevant fund	160
EIC Fund	2021-2027	10	• EU budget guarantee • EIB	• EU budget guarantee	-
Digital Europe Programme	2021-2027	7.5	• EU budget	• Mainly procurement, grants, prizes • But funding may be provided in any of the forms laid down in the Financial Regulation	-
EU4Health	2021-2027	5.8	• EU budget • NGEU	• Funding may be provided in any of the forms laid down in the Financial Regulation	-
LIFE	2021-2027	5.4	• EU budget	• Mainly grants, prizes, procurement	-
Single Market Programme	2021-2027	4.2	• EU budget	• Mainly grants, prizes, procurement • But funding may be provided in any of the forms laid down in the Financial Regulation	-
EU Civil Protection Mechanism (rescEU)		3.3	• EU budget	• Mainly grants, prizes, procurement • But funding may be provided in any of the forms laid down in the Financial Regulation	-
Euratom Research and Training Programme	2021-2027	1.38	• EU budget • NGEU	• Funding may be provided in any of the forms laid down in the Financial Regulation	-
Social Climate Fund		-	• ETS 2	• Funding may be provided in any of the forms laid down in the Financial Regulation	72.2
Innovation Fund	2021-2027	-	• Monetisation of 530 million ETS allowances	• Grants • Blending operations	40

Appendix 2: Detailed descriptions of EU investment programmes

Investment Plan for Europe (2015-2020)

Description

EFSI is one of the three pillars of the Investment Plan for Europe (also known as the Juncker Plan) that aimed to revive investment in strategic projects around the continent to ensure that money reaches the real economy. EFSI's purpose was to unlock EIB financing for economically viable projects that would have been considered too risky for EIB participation without the EFSI. EFSI itself was/is backed by a guarantee from the EU budget. It aimed at boosting long-term economic growth and competitiveness in the European Union. The projects covered areas such as infrastructure, research and innovation, education, health, information and communications technology and other areas. EFSI had two windows: the Infrastructure and Innovation Window (IIW), managed by the EIB, and the SME Window (SMEW), managed by the EIF. EFSI provided a €26 billion budgetary guarantee from the EU budget, complemented by €7.5 billion allocation from the own resources of the EIB. The EFSI managed to over-deliver, while mitigating the impact of COVID-19 on Europe's economy.

Implementation

As of 31 December 2022, EFSI financing approved by the EIB Group led to a total investment value of €524.9 billion, therefore surpassing the target set by policy makers. In terms of financing signed, the total mobilised investment is €503.0 billion (European Commission, 2023b) . European Commission (2022b) and EIB (2022b) found that the EU guarantee proved significant as it enabled the EIB Group to undertake riskier activities, in line with expectations when the EFSI was designed. EFSI also proved a relevant tool to mobilise private capital. However, the different EIB evaluation reports have underlined some concentration in those member states with well-developed institutional capacities[25], possibly resulting in an unequal distribution of funds.

The availability of the EU Guarantee proved to be an efficient tool to considerably increase the volume of riskier operations by the EIB Group. In particular, the EFSI budgetary guarantee freezes less budgetary resources compared to financial instruments, as it requires limited provisioning needs compared to the level of financial engagement. As of 2022, the cumulative amount of guarantee calls is modest at about €184 million. Given that this represents a relatively modest sum, it suggests that the EIB is capable of assuming greater risks. This relatively low amount could suggest that a guarantee from the EU is enough to unlock financing for the vast majority of projects executed under EFSI, without significantly increasing the burden on the EU budget. On the other hand, the low default rate of projects could simply suggest that the projects were not very risky to begin with, and that the guarantee has not led the EIB to invest in significantly riskier projects. Therefore, the EU guarantee could be directed towards projects with even higher levels of risk.

Lessons to be learned

EFSI was the start of a paradigm shift towards a different way of using EU financial resources – away from grants and towards financial guarantees backed by the EU budget. This enabled the use of fewer resources for the same objectives and implemented the idea of attracting private sector financing for projects fitting

25 The market maturity was a limitation on certain types of lending and equity financing. Countries with more developed markets ended up putting forward more proposals.

public policy goals. However, there is a trade-off between volume and impact, because to make a greater impact, a high provisioning rate is needed. One critique that comes out of the different evaluations is that some type of projects (eg public sector projects of the municipalities, sustainable infrastructure, social infrastructure, and social economy) remained too small for the EIB intervention under the EFSI. Therefore, opening the EU guarantee to new implementing partners would be favourable as this will also enable a better outreach of the EU guarantee and provide a local presence.

InvestEU (2021-2027)

Description

The InvestEU programme aims to enhance EU competitiveness, innovation, sustainability, and social cohesion. It is demand-driven and focuses on strategic, long-term goals in key policy areas that may lack funding, aligning with EU policy objectives. The InvestEU programme consists of three components: the InvestEU Fund, the InvestEU Advisory Hub and the InvestEU Portal. The InvestEU Fund should support projects that are economically viable by providing a framework for the use of debt, risk sharing, and equity and quasi-equity instruments backed by a €26.2 billion guarantee from the Union budget and by financial contributions from implementing partners. It aims to trigger more than €372 billion in investments. The InvestEU programme supports four main policy areas: i) sustainable infrastructure with €9.9 billion ii) research, innovation and digitisation with €6.6 billion, iii) SMEs with €6.9 billion, and iv) social investment and skills with €2.8 billion.

Implementation

InvestEU is a multifaceted financing initiative that goes beyond the EIB Group[26], involving various implementing partners such as national promotional banks and international financial institutions, as for example the European Bank for Reconstruction and Development (EBRD), the Council of Europe Development Bank (CEB) or the Nordic Investment Bank (NIB). The wider set of implementing partners is a key difference to EFSI.

Further, the project preparation and advisory support complementing InvestEU, the InvestEU Advisory Hub, is open to partnerships with national promotional banks that are not implementing partners. This partnership framework in financing and project preparation is an innovation vis-à-vis EFSI, which had supported EIB Group operations alone and whose advisory services were and are managed only within, and by, the EIB Group. However, the limited public funds supporting InvestEU could pose a challenge in attracting transformative investments and sharing risks effectively. Some critical green transition projects may not be suitable for InvestEU financing, especially those lacking commercial viability. While effective in unlocking investments for lower-risk projects like retrofitting buildings to increase energy efficiency, InvestEU's high leverage structure has limitations. It tends to prioritize projects with short-to-medium-term cash flows, relying on indirect instruments like loan guarantees. Accountability and transparency issues also plague InvestEU. Furthermore, the lack of transparency makes it challenging to assess whether investments align with EU climate policies. The European Commission has not adequately published data through its climate tracking system, as legally required. Confidentiality further obscures the scrutiny of InvestEU's climate impact and the destination of intermediated funds. To address this, the Commission should disclose how much financing aligns with the EU taxonomy for sustainable activities[27] and report on the actual climate-related outcomes of its financing operations, such as reductions in greenhouse gas emission (Findeisen and Mack, 2023).

Since InvestEU only started in 2021, it is too early to assess the risk profile of projects at the time of writing.

26 75 percent of the guarantee is implemented by EIB Group.
27 See European Commission: https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en.

NextGenerationEU (2021-2026)

Description

NGEU is a temporary recovery instrument to support the economic recovery from the Covid-19 pandemic and build a greener, more digital and more resilient future for the EU. The programme is worth €806.9 billion as of 2023 and is scheduled to operate from 2021 to 2026. It is financed by the issuance of bonds and by the EU budget. More than 50 percent of the long-term budget and NextGenerationEU are supporting modernisation, for example through: research and innovation (via Horizon Europe), fair climate and digital transitions (via the Just Transition Fund and the Digital Europe programme), preparedness, recovery and resilience (via the Recovery and Resilience Facility, rescEU and a new health programme, EU4Health). In addition, the package pays attention to: modernising traditional policies, fighting climate change, and biodiversity protection and gender equality. The centrepiece of NGEU is the Recovery and Resilience Facility (RRF) – an instrument that provides grants and loans to support reforms and investments in the EU member states which is worth €723.8 billion. Part of the NextGenerationEU, funds are also being used to reinforce several existing EU programmes, such as REACT-EU (€50.6 billion), Just Transition Fund (€10.0 billion), Rural Development (€8.1 billion), InvestEU (€6.1 billion), Horizon Europe (€5.4 billion) and RESCEU (€2 billion). We will here mainly talk about the RRF of which €385 billion of funds is given out in loans and €338 billion of funds in grants. Under the programme's centrepiece, the RRF, the EU will distribute €385 billion of funds in loans and €338 billion in grants. To benefit from support under the Facility, EU governments have submitted national Recovery and Resilience Plans (RRPs), outlining the reforms and investments they will implement by end-2026, including clear milestones and targets. The plans had to allocate at least 37 percent of their budget to green measures and 20 percent to digital measures. The Recovery and Resilience Facility is performance based. This means that the Commission only pays out the amounts to each country when they have achieved the agreed milestones and targets towards completing the reforms and investments included in their plan.

Implementation

The latest report from the European Commission, dated 25 September 2023, regarding the implementation of the RRF, reveals various outcomes. Until December 2022, the RRF had helped 1.43 million enterprises either through monetary or in-kind support and in the second half of 2022, over 4 million people have been trained with RRF support. Moreover about 22 million megawatt hours (MWh) of savings in annual energy consumption were achieved by the end of 2022. Major progress has been made in (i) the continuous implementation of the RRF, (ii) increasing the transparency around its implementation, and (iii) protecting the financial interests of the EU by stepping up control and audit efforts. Some member states are facing challenges in administering funds, partly due to administrative capacity issues or investment bottlenecks. Some other member states are facing difficulties in implementing the RRPs as initially designed due to changes in economic circumstances such as high inflation or supply bottlenecks. The Commission is supporting all member states to accelerate the implementation and revision of their plans, including through the Technical Support Instrument. The revisions of RRPs and the addition of REPowerEU chapters have also impacted the disbursement schedule of RRF funds, as the first half of 2023 has seen a slowdown in the submission of payment requests, with member states focusing their efforts on the revision of plans and the addition of REPowerEU chapters. In 2023, the Commission made also significant efforts to increase the clarity and transparency around the Facility's implementation. The Commission published, on 21 February 2023, its methodologies on (i) assessing the satisfactory fulfilment of milestones and targets, and (ii) calculating the suspended amounts in case of non-fulfilment of a milestone or target. Furthermore, the amendments to the RRF Regulation require member states to publish information on the 100 final recipients receiving the highest amounts of RRF funding.

One point of discussion is the evaluation of member states performances. NGEU is supposed to be a performance-based programme, in the sense that disbursement of funds is conditional on countries

achieving milestones and targets. But as mentioned by Darvas *et al* (2023a), Article (2) of the regulation defines 'milestones and targets' as "measures of progress towards the achievement of a reform or an investment". The expression "measures of progress towards" thus indicates a process, not necessarily the achievement of results. This is also observed by the European Court of Auditors (2023). Therefore, a clearer definition of 'performance-based' is needed, and should be based on output not processes. There is also discussion surrounding whether the milestones and targets set aren't sufficiently ambitious. As mentioned in Corti *et al* (2023), Italy will successfully fulfil the milestones and targets but will likely not achieve the objectives of the measures included in its RRP – namely reducing regional and local inequalities in the provision of employment and childcare services. This could indicate that milestones and targets defined under RRF are too easy to achieve.

REPowerEU (2022-2026)

Description

REPowerEU, focuses predominantly on enabling an orderly and affordable phase-out of Russian gas by 2027. The plan covers four main areas: energy efficiency and savings; energy supply diversification; clean-energy transition acceleration; and investment and reform. The REPowerEU plan has required massive investments and reforms. The EU has mobilised close to €300 billion - approximately €72 billion will be in grants and approximately €225 billion in loans (these are the loans that were uptaken in the RRF and is thus not new money). This will include approximately €10 billion in missing links for gas and liquefied natural gas and up to €2 billion for oil infrastructure to end the import of Russian oil. The rest of the financing, 95 percent of the initial €300 billion, will go into speeding up and scaling up the clean energy transition. An extra €210 billion will be needed to achieve the programme objectives. The Recovery and Resilience Facility (RRF) is at the heart of this funding. The REPowerEU proposal encourages member states to use their national recovery and resilience plans (RRPs) as a strategic framework for reforms and investments to ensure joint European action for a more resilient, secure and sustainable energy system. In order to align with RePowerEU, revisions to RRPs would incorporate new measures within a dedicated REPowerEU chapter.

Implementation

The European Court of Auditors (2022) pointed out in a report the limits to REPowerEU. Whilst REPowerEU targets the EU as a whole, the RRF is implemented through measures put forward by member states. This poses a risk in terms of the strategic response to the challenges ahead and may favour the priorities of individual member states rather than those of the Union as a whole. The limited timeframe of the RRF in combination with the time needed to submit and approve the amendments to the RRPs may not be suitable for the some of the REPowerEU objectives. The preamble of REPowerEU (Regulation (EU) 2023/435) states that "reforms and investments set out in the REPowerEU chapters which are necessary to improve energy infrastructure and facilities to meet immediate security of supply needs for gas should be eligible for financial support under the Facility even if they do not comply with the principle of 'do no significant harm'". The REPowerEU targets are likely to have an impact on the environment and thus there might be a trade-off between the objective of secure energy supply and environmental and climate concerns, at least in the short run. However, given the strong focus in the RRF on green targets and climate, introducing an exemption from the principle of 'do no significant harm' may jeopardise one of its core values. Thus, it may be useful at least to have an indication of the impact of potentially harmful measures to select those which represent an acceptable level of environmental and climate impact compared to the value added they are expected to bring to the REPowerEU objectives. The fact that the REPowerEU chapters may be submitted at different times further impairs the inclusion of cross-border projects in RRPs.

STEP (2023-2027)

Description
STEP seeks to reinforce, leverage and steer EU funds to investments in deep and digital, clean and bio technologies in the EU, and in people who can implement those technologies into the economy. By strategically leveraging existing programmes like InvestEU, Innovation Fund, Horizon Europe, EU4Health, Digital Programme, European Defence Fund, Recovery and Resilience Facility, and cohesion policy funds, STEP anticipates generating up to €160 billion in new investments. This ambitious programme will be funded with €14.5 billion from the EU Budget, implemented by an additional €7.5 billion EU guarantee into InvestEU, €0.5 billion allocated to Horizon Europe, €5 billion to the Innovation Fund, and €1.5 billion to the European Defence Fund.

Implementation
Climate Action Network (2023) Europe has highlighted several drawbacks associated with STEP. Firstly, there is no assurance that the supported investments will adhere to the do no significant harm principle. Additionally, STEP does not explicitly focus on climate action or directly contribute to achieving Green Deal objectives, contrary to the initial vision outlined in the Green Deal Industrial Plan. Instead, it encompasses a broad spectrum of 'strategic' technologies. Lastly, it doesn't introduce new EU resources; rather, it reorganizes and repackages existing ones.

Connecting Europe Facility (2021-2027)

Description
CEF supports the deployment of high-quality, sustainable infrastructure in the transport, energy and digital sectors by encouraging both public and private investment. The CEF benefits people across all member states, as it makes travel easier and more sustainable, it enhances Europe's energy security while enabling wider use of renewables, and it facilitates cross-border interaction between public administrations, businesses and citizens. It is divided into three components: transport, energy and digital. The energy budget of €5.84 billion should help the transition towards clean energy and complete the Energy Union, making the EU energy systems more interconnected, smarter and digitalised. The budget for CEF Transport is of €25.81 billion (including €11.29 billion for cohesion countries). CEF Transport focuses on cross-border projects and projects aiming at removing bottlenecks or bridging missing links in various sections of the Core Network and on the Comprehensive Network. The budget for CEF Digital is of €1.8 billion and is managed by Health and Digital Executive Agency (HaDEA).

Implementation
CEF shall contribute, through its actions, 60 percent of its overall financial envelope to climate objectives. Implementation of the programme's 2014-2020 actions has also been directly impacted by COVID and geopolitical crisis in Ukraine, thus it is too early to conclude whether the programme's targets will be achieved as the nature of large-scale infrastructure projects makes it difficult to already present information.

Digital Europe Programme (2021-2027)

Description
It focuses on bringing digital technology to businesses, citizens and public administrations. It will not address these challenges in isolation, but rather complement the funding available through other EU programmes, such as the Horizon Europe programme and the Connecting Europe Facility for digital infrastructure, the Recovery and Resilience Facility and the Structural fund. With a planned overall budget of €7.5 billion the Digital Europe Programme will support projects in five key capacity areas: in

supercomputing (€2.7 billion), artificial intelligence (€2.5 billion), cybersecurity (€2 billion), advanced digital skills (€700 million), and digital transformation of public administration and interoperability (€1.3 billion).

Implementation
Implementation is on track. Most projects implemented via grants or joint procurement will start implementation in early 2024. However, with the Russian invasion in Ukraine many countries had to reprioritise investments in other areas and some proposals have been affected mainly those that needed more national support.

Social Climate Fund (2025-2032)

Description
The Social Climate Fund will finance temporary direct income support for vulnerable households and support measures and investments that reduce emissions in road transport and buildings sectors and as a result reduce costs for vulnerable households, micro-enterprises and transport users. It should be implemented in 2025 and expect a budget of €23.7 billion for 2025-2027 and €48.5 billion 2028-2032. The fund is based on the revenues of the Emissions Trading System 2 (ETS 2), covering fuel combustion in buildings, road transport and additional sectors (mainly small industry not covered by the existing).

Implementation
As pointed out by the European Economic and Social Committee (2021), stakeholders have been sceptical and even negative about extending emissions trading to buildings and road transport, pointing to the expected social and economic impact of an increase in heating and fuel prices on financially weaker households, medium-, small- and micro-enterprises and transport users. Moreover, the fund is only partially dedicated to social compensation it also focuses on incentives of EV and decarbonisation. Furthermore, it is quite surprising that a fixed amount of €72.2 billion is proposed whereas it will be based on a volatile EU ETS market.

European Structural and Investment Funds (2014-2020)

Description
The European Structural and Investment Funds (ESI Funds) comprise five different funds and tries to increase smart, sustainable and inclusive growth, strengthen the institutional capacity of public administration, step up territorial and urban development and territorial cooperation. The five funds, part of the MFF, included are the European Regional Development Fund (ERDF), European Social Fund (ESF), Cohesion Fund, European Agricultural Fund for Rural Development (EAFRD), European Maritime and Fisheries Fund (EMFF). The policy objectives pursued with the ESI Funds include: research and innovation, digital technologies, supporting the low-carbon economy, sustainable management of natural resources, small businesses, smart, sustainable and inclusive growth, employment, better education and training, strengthening the institutional capacity of public administration and urban development and territorial cooperation (Interreg).

Implementation
The 2014-2020 financial period ends at the end of 2023 under the so-called N+3 rule. End 2021, the ESI Funds unleashed a total investment of €731 billion, of which €535 billion was funded by the EU. The funds supported more than 4 million businesses and created over 310 000 new jobs, maintained over 44 000 jobs and created over 6 000 new jobs in the fishing and aquaculture sector. It improved the energy efficiency of 460 000 households and increased the energy production capacity coming from renewable energy resources by more than 3 600 MW (the equivalent of around 1 800 wind turbines). Moreover, 55.2 million participants benefitted from the ESF and Youth Employment Initiative supported projects and ESI Funds helped 55.2 million people through employment, social inclusion, or education actions. It also support-

ed over 2.3 million projects in the agricultural sector and rural areas. Finally, 64 percent of the total rural population is covered by more than 3 650 LEADER Local Action Groups implementing Local Development Strategies supported by the EAFRD.

European Social Fund Plus (ESF+) (2021-2027)

Description

It corresponds to the main instrument for investing in people. With a budget of almost €99.3 billion for the period 2021-2027, ESF+ provides an important contribution to the EU's employment, social, education and skills policies, including structural reforms in these areas. The majority of funding under the ESF+ (€98.5 billion) will be allocated under shared management with the member states. This means that the ESF+ Managing Authorities in each country will dedicate the money to projects that are run by a range of public and private organisation and responding to the country- and region-specific needs. In addition to the shared management strand of the fund, the European Commission directly manages a smaller share (€762 million) of the ESF+ under the Employment and Social Innovation (EaSI) Strand. This side of the fund will support analytical activities, capacity building and transnational/cross-border cooperation to strengthen social protection and social inclusion, fair working conditions, equal access to the labour market, social entrepreneurship and labour mobility. ESF+ brings together four funding instruments that were separate in the programming period 2014-2020: the European Social Fund (ESF), the Fund for European Aid to the most Deprived (FEAD) the Youth Employment Initiative and the European Programme for Employment and Social Innovation (EaSI). In member states where the number of NEETs is above the EU average, 12.5 percent of the fund will be spent on combating youth unemployment. At least 25 percent of the budget is to be spent on promoting social inclusion, including the integration of non-EU nationals and at least 3 percent of the budget is to be spent on food aid and basic material assistance for the most deprived. Similarly, member states with a level of child poverty above the EU average must use at least 5 percent of their ESF+ resources to address this issue.

Implementation

Due to the late adoption of the ESF+ in 2021, its implementation had a slow start in 2022. In total, nine countries (CZ, EL, HR, HU, LT, PL, RO, SI, and SK) transferred ESF+ budget to the ERDF and the CF, amounting to a total transfer of €3.9 billion. The transfers from other funds to the ESF+ amounts to €1.4 billion in total. Gender equality is one of six thematic enabling conditions used for the first time in the 2021-2027 period. That means that gender equality is a prerequisite for the effective and efficient implementation of the specific objectives of the fund(s). Performance assessments for the shared management strand and the direct management strand of the ESF+ will be provided once the implementation has taken off in 2023.

Innovation Fund (2018-)

Description

The Innovation Fund will contribute to greenhouse gas reduction by helping create the right financial incentives for new investments in the next generation of technologies needed for the EU's low-carbon transition. It is designed to take into account the lessons learned from its predecessor, the NER300 programme. The EU Emissions Trading System (EU ETS) provides the revenues for the Innovation Fund from the monetisation of 530 million ETS allowances. The unspent funds from the NER300 programme, the Innovation Fund's predecessor, were also transferred to the Innovation Fund. The Innovation Fund's total funding depends on the carbon price, and it is estimated to about €40 billion from 2020 to 2030.

Implementation

A report by the think tank Sandbag (2023)[28], specialised in climate policy, pointed out some drawbacks of the Innovation Fund. They claim that grants made under the Innovation Fund should exclusively consider the value at technological risk, rather than the degree of innovation and that it should avoid upfront funding except for projects with a high technology risk. Moreover, for a project's greenhouse gas (GHG) avoidance estimates to be as accurate as possible, they should be i) reviewed by the whole panel of experts, not just one ii) independently estimated by the expert panel for use in the rating of the other criteria using this information and iii) assess with reference to updated benchmarks to ensure a project's innovativeness and contribution to emissions avoidance.

Horizon Europe (2021-2027)

Description

The EU's key funding programme for research and innovation with a budget from €95.5 billion. The programme facilitates collaboration and strengthens the impact of research and innovation in developing, supporting, and implementing EU policies while tackling global challenges (climate changes, UN's Sustainable Development Goals). It supports creating and better dispersing of excellent knowledge and technologies. It is the follow-up of Horizon 2020. Horizon Europe consists of three pillars and one horizontal activity: €23.5 billion is allocated to Pillar I Excellent Science, €47.4 billion for Pillar II 'Global Challenges and European Industrial Competitiveness', €11.9 billion for Pillar III 'Innovative Europe' and €3.2 for Part 'Widening Participation and Strengthening the ERA. Grants are the main form of support.

Implementation

Only 7 percent of Horizon Europe spending has been allocated to address biodiversity for the 2021-2022 period whereas target is 10 percent so need more efforts to address this issue.

REACT-EU (2021-2023)

Description

An initiative that continues and extends the crisis response and crisis repair measures delivered through the Coronavirus Response Investment Initiative and the Coronavirus Response Investment Initiative Plus. Only implemented from 2021 to 2022 and financed by NGEU with a budget of €50.6 billion. REACT-EU captures only national-level data on the pre-pandemic situation and on the economic impact of the crisis on member states. Spain and Italy, each with an allocation of more than €14 billion, are by far the two main recipients and together account for 57 percent of the total budget. In 2021 (€39.6 billion) and the rest in 2022 (€10.8 billion). REACT-EU is not a new funding source, but a top-up to 2014-2020 European Regional Development Fund and European Social Fund allocations. It is delivered under shared management. This initiative will support investment projects that foster crisis-repair capacities and contribute to a green, digital and resilient recovery of the economy, including support for maintaining jobs, short-time work schemes and support for the self-employed. However, it is not limited to that and can also support job creation and youth employment measures, healthcare systems and investment support for small and medium-sized enterprises.

Implementation

One and a half years after the start of REACT-EU, as of 30 June 2022, some member states still had large amounts to allocate, such as Ireland and Portugal with 38 percent and 25 percent unprogrammed resources respectively. At that date, only 24 percent of REACT-EU's allocation had been paid to member states.

28 See Sandbag's website: https://sandbag.be/2023/05/25/fixing-the-commissions-innovation-fund-fixation/.

The risk is that there will be a rush to spend available resources before the end of the period, potentially leading to insufficient attention being paid to performance and value for money considerations.

ERDF/Cohesion Fund

Description
ERDF is intended to help to redress the main regional imbalances in the Union. The Cohesion Fund provides support to member states with a gross national income (GNI) per capita below 90 percent EU27 average to strengthen the economic, social and territorial cohesion of the EU. With a total budget of €274 billion, from which €48 billion for the Cohesion Fund and €226 billion for the ERDF. The Cohesion Fund contributes to environmental and trans-European transport network (TEN-T) infrastructure projects. The ERDF contributes to reducing disparities between the levels of development of the various EU regions, including by promoting sustainable development and addressing environmental challenges.

Implementation
The *ex-post* evaluations of the 2014-20 period shall be completed by the end of 2024.

Appendix 3: Case studies of national public investment management

The following section reviews good practices of public investment management with respect to the principles written by the (OECD, 2014).

Netherlands

In the Netherlands, several good practice examples of public investment management can be underlined. One example is the MIRT, which stands for Multi-Year Programme for Infrastructure, Spatial Planning, and Transport. This involves projects where national and regional governments work together to improve the country's competitiveness, accessibility, and quality of life. The Ministry of Infrastructure and Water Management is involved, but other ministries and regional partners like provinces, municipalities, and NGOs can also join in.

The OECD also suggests effective coordination across government levels (Principle 2). In the Netherlands, a good example referring to this is the Association of Dutch Municipalities (VNG) that unites all municipalities, and the Association of Provinces (IPO) which looks after the provinces. Both focus on mutual learning and exchanging experiences. IPO's main job is representing the interests of provinces in national and EU processes.

With respect to Principle 4, when selecting projects, the Ministry of Infrastructure and the Environment have several criteria for selecting infrastructural projects to be (co-)funded by national government. One of them is the National Market and Capacity Analysis (NMCA). The latter indicates where infrastructure capacity is not expected to be sufficient to reach the goals of National Policy Strategy for Infrastructure and Spatial Planning (i.e. the target values for traveling time), taking into account the expected development of mobility.

Netherlands have been particular efficient in water management. One reason behind this is the Rijkswaterstaat (RWS), which is the executive organization of the Ministry of Infrastructure and Water Management. Rijkswaterstaat manages, maintains, and develops the three major infrastructure networks of the Netherlands: the main road network, the main waterway network, and the main water system. It is RWS's goal to assess bids by the total cost of construction and maintenance, using life cycle costing and total

cost of ownership concepts. To calculate life cycle costs, RWS has developed the DuboCalc software, which allows to calculate the environmental effects of a material, building or method. The software calculates life cycle environmental impacts in 11 areas using a life cycle assessment (LCA) database, converting these impacts into an environmental cost indicator (ECI) value for the proposed design. The materials proposed by the successful bidder become contract requirements and the ECI value of the final product is checked upon completion of the work.

UK

In the UK, we can put forward several good practice examples of public investment management. With respect to Principle 6 on mobilising private actors, an example can be the Private Finance Initiative. Private Finance Initiative (PFI) projects are a type of public-private partnership (PPP), used to fund major capital investments. PPPs refer to a wide range of different types of collaboration between public and private bodies. The UK has been at the forefront of using PFIs to deliver public investment projects. However, it has also been majorly criticised for hugely raising costs of projects and in October 2018, the then-Chancellor Philip Hammond announced that the UK government would no longer use PFI[29].

The Office for National Statistics has developed over many years a comprehensive set of comparable statistics at neighbourhood level (municipalities). These publicly available data have been used both in national and local policies and as a decision tool by citizens. Moreover, a Cities Policy Unit was created in 2011 with public, private, central and local stakeholders to help co-ordinate urban policy. The goal of the Cities Policy Unit is to work with both cities and government to help cities create new ideas and turn the ideas into successful plans. Both these initiatives are a good example of Pillar 1 which focus on coordination across governments and policy areas. Since late 2011, urban policy has been centred on a growing number of City Deals in England that are being implemented in waves. These deals are agreements between government and a city and allow a greater degree of responsibility to English cities. City deals require better horizontal (across departments) and vertical (between the government and the cities) coordination, and local capacity.

To engage public, private and civil society stakeholders throughout the investment cycle (Principle 5), the UK uses Local Strategic Partnership (LSP). Which is a non-statutory body that brings together different parts of the public, private, voluntary and community sectors working at a local level. They have no legal powers or resources of their own.

To mobilise private actors and to diversify the sources of funding (Principle 6), the government launched Local Enterprise Partnerships (LEPs). These partnerships between local authorities and businesses decide on local priorities for investment in roads, buildings and facilities.

What concerns Principle 9, the UK has a fiscal framework to support debt sustainability and affordability (IMF, 2022). The revised Charter for Budget Responsibility sets out how UK's management of public finances operate. The Charter do not set numerical debt targets or limits but includes a fiscal mandate to have public sector net debt (excluding the Bank of England) as a percentage of GDP falling by the third year of the rolling forecast period. Then there is also the Office of Budget Responsibility (OBR) that provides authoritative independent fiscal forecasts and assesses the long-term sustainability of public finances. The OBR produces detailed five-year forecasts for the economy and public finances twice a year, which the government uses to produce its Autumn and Spring Budget documents. Finally, the UK also has a medium-term fiscal framework (MTFF) that aligns budget preparation and public investment plans with fiscal policy. The Charter of Budget Responsibility stipulates how the MTFF works and the interaction between the Treasury and the OBR during the budget process.

In 2020, was presented the National Infrastructure Strategy (NIS). The latter plans to transform UK infrastructure to level up the country, strengthen UK's Union and achieve net zero emissions by 2050. The NIS

29 Lorna Booth, 'Goodbye PFI', *House of Commons Library*, UK Parliament, 30 October 2018, https://commonslibrary.parliament.uk/goodbye-pfi/.

is thus the overarching plan for economic infrastructure and encompasses investment across transport, energy, water and wastewater, waste, flood risk management, and digital communications.

Italy

In Italy several good practice examples of public investment management can be highlighted. The existence of the Inter-ministerial Committee for Economic Planning (CIPE) is a good example with respect to Principle 1 of the OECD. CIPE is the main body responsible for the coordination and horizontal integration of national policies, as well as aligning Italy's economic policy with EU policies. It has been renamed into the Inter-ministerial Committee for Economic Programming for Sustainable Development (CIPESS), as of 1st January 2021. The role of this Committee's mandate is to steer economic programming towards the National Sustainable Development Strategy objectives in the context of Agenda 2030. There also exist the "Conference of Regions and Autonomous Provinces" which ensures a political dialogue and vertical co-ordination between the regional and national governments. It is a political body of coordination between the regions of Italy and their presidents. In fact, joint documents are prepared by the Conference and are later presented during the meetings of the State-Regions Conference and the Unified Conference.

Conform with Principle 3, Basilicata provides successful examples of horizontal co-operation across regions and across municipalities. A good example of horizontal co-operation is the Programme Agreement concerning the management of the water resources transferred from Basilicata to Puglia by the Ionico-Sinni water system signed in 1999. Furthermore, to ensure a more efficient horizontal cooperation in 2014 the Delrio Law transformed the Provinces of Italy in a reduced number of broader administrative entities.

Finally, Basilicata also invested heavily in monitoring and evaluation to support decision makers. The regional level has a Public Investment Evaluation Unit (NVVIP) under the Department for structural funds, which is responsible for monitoring and evaluating all public investments in the region and for checking the consistency of strategic projects with respect to the regional development plan and the annual financial plan. The unit also performs impact evaluations of public investment projects on employment and production (Principle 8).

Ireland

From the technical assistance report from the (IMF, 2017), several good practices of public investment management have been highlighted. The report points out the good alignment of investment and planning. The National Planning Framework and the National Development Plan 2021-2030 combine to form Project Ireland 2040. The NPF sets the vision and strategy for the development of Ireland to 2040 and the NDP provides the enabling investment to implement that strategy. This could refer to the Principle 1 of the Recommendation of the OECD.

To ensure enhancing projects and a good programme governance Ireland has the National Investment Office and the government has recently implemented the External Assurance Process, which will allow for independent scrutiny of public projects at key decision-making stages of the project lifecycle which will ensure taxpayer's money is spent wisely and projects are delivered on time and on budget.

With respect to Principle 8 and Principle 10, thus to improve transparency and to learn from the past Ireland has updated the Spending Code that now requires publication of business cases and post-project reviews (Conroy *et al*, 2021). Furthermore, on recommendation of the IMF, Ireland has implemented an investment tracker which focuses mainly on projects and programmes with costs greater than €20 million. The tracker serves to highlight the diverse range of infrastructural projects throughout Ireland.

An example of good practice of Principle 6 on mobilising the private sector is the Construction Sector Group. The Construction Sector Group was set up in 2018 tasked with maintaining a sustainable and innovative construction sector that would be able to deliver on long-term commitments. The Construction Sector Group is chaired by the Secretary General of the Department for Public Expenditure and Reform.

Principle 7 states to reinforce the expertise of officials and institutions to have a better management of public investment. A good example of practice is the Irish Commercial Skills Academy (CSA) that was setup

in 2019. The CSA offers training on best practice approaches for effective delivery throughout the lifecycle of a project. Their aim is to enhance the skillsets of key spending departments and public sector bodies. Or for example the InfraNet. The latter is a forum for experts to critically examine public investment governance, reforms and innovations. The goal is to engage with experts in public sector and delivery bodies to share best practice, issues and solutions.

Finally, to align with Principle 4, there exist the Irish Government Economic and Evaluation Service (IGEES). The IGEES seeks to improve policy formulation and implementation by providing and building economic and analytical expertise across the Irish civil service (OECD, 2020).

France

To align with Principle 8, in 2012 the French government took the decision[30] to subject all public projects of a certain importance to a socioeconomic assessment that until than was reserved for certain areas such as transport. It has been based on two pillars (Baumstark *et al*, 2021). The support of project leaders and the organization of counter-expertise was ensured by CGI (now SGPI).

In the analysis of public investment management in France, the roles of key entities, namely BPI France, CDC, and SGPI, are pivotal.

The Secrétariat général pour l'investissement (SGPI) is a good example the practice Principle 1 and Principle 2. SGPI has a central role in ensuring coherence in the state's investment policy. It is involved in the decision-making processes related to contracts between the state and investment management entities and also coordinates the preparation of project specifications and monitors their alignment with government objectives. Moreover, it is responsible for the overall evaluation of investments, both before and after implementation. Finally, it compiles annual reports on programme execution and supported ministerial evaluation mechanisms. The SGPI, under the authority of the Prime Minister, is responsible for ensuring the coherence and monitoring of the State's investment policy through the implementation of the France 2030 plan. This unprecedented plan builds on the achievements of the Programmes of Investments for the Future (PIA), notably PIA 4, endowed with €20 billion. France 2030 is overseen by the SGPI on behalf of the Prime Minister and implemented by the Agency for Ecological Transition (Ademe), the National Agency for Research (ANR), Bpifrance, and the Banque des Territoires. In the past, SGPI had a primordial role in the implementation of the European instrument, EFSI, in France. This institution was able to communicate around EFSI towards project promoters, act as a contact point and monitor and issue brochures of EFSI projects being financed. This is believed to have fostered ownership of EFSI in France (Wilkinson *et al*, 2022).

Bpifrance and Caisse des Dépôts et Consignations (CDC) are examples on how to mobilise financial institutions for a better management of public investment (Principle 6). CDC is a special institution responsible for administering deposits and consignments, providing services relating to the funds entrusted to its management, and performing other legally delegated functions of a similar nature. It is responsible for protecting popular savings, financing social housing and managing pension funds. It also contributes to local and national economic development, particularly in the fields of employment, urban policy, the fight against banking and financial exclusion, business creation and sustainable development. This group carries out tasks in the public interest that support public policies pursued by the State and local communities. It supports the housing sector, the regions (Banque des Territoires), the environment, financing businesses and the daily lives of French people (Ciclade, Mon compte formation). Bpifrance is a French public sector investment bank. It is a joint venture of two state owned enterprises: the CDC and EPIC BPI-Groupe (formerly EPIC OSEO). Bpifrance's goal is to favour the growth of the French economy by helping entrepreneurs thrive. It plays a significant role in the management of public investment. Bpifrance's 2022-2025 strategic plan covers the priorities of the France 2030 Investment Plan. Bpifrance as main operator for financing the Investments for the Future Programme for French startups, SMEs, and intermediate-sized

30 Act of 31 December 2012 about Public Finance Planning.

enterprises was and is still very successful. Another example on the efficiency of the French government on mobilising financial institutions (Principle 6) is the Agence France Locale created in 2013. Agence France Locale is 100 percent owned by French local authorities. Its mandate is to raise cost-efficient resources in capital markets by pooling together the funding needs of all member local authorities. It aims to provide French local authorities with alternative funding sources.

A more precise example of Principle 3, to ensure a coordination across subnational governments, in France is the state-region planning contracts (OECD, 2017). The Contrat de plan État-région (CPER) have been in operation since 1982 and are important tools in regional policy in terms of planning, governance and co-ordination. In 2016 the State-Metropoles Pacts was launched, which aim at empowering new sub national entities, the metropoles (MAPTAM law, 2014). They will support urban innovation at the metropolitan scale through financial partnering in some key investments.

An example of good practice of Principle 2 in France is the public establishment for inter-municipal co-operation (EPCI). There are more than 36 000 communes in France and the government has long been against mergers and thus has encourages municipal cooperation. There are about 1254 EPCI with own-source tax revenues aimed at facilitating horizontal co-operation. They are governed by delegates of municipal councils and must be approved by the State to exist legally. To encourage municipalities to form an EPCI, the central government provides a basic grant plus an 'inter-municipality grant' to preclude competition on tax rates among participating municipalities. EPCIs draw on budgetary contributions from member communes and/or their own tax revenues.