

THE ROLE OF THE EIB IN THE GREEN TRANSFORMATION

by

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I. INTRODUCTION

This paper will first examine (in section II) the context in which the European Investment Bank, (EIB) needs to operate, given the major challenges of the European Green transformation, and in the framework of the European Green Deal (EGD), with reference also to the major additional challenges posed by COVID-19 crisis, including the financing of companies, especially SMEs. It will then briefly outline the new roles and resources, which the EIB has been given to meet these challenges, and the central role the EIB will be playing in the green transition. This paper builds on previous research carried out by one of the authors in a FEPS project, (Griffith-Jones and Naqvi 2021), which described the history, scale and role of the EIB/EIF (European Investment Fund), part of the EIB Group which is, by far, the largest multilateral bank in the world.

The paper (in section III) will then focus on some of the main instruments the EIB does and can use to help achieve the aims posed by the above challenges. Special emphasis will be placed on the role that equity and quasi-equity instruments (such as venture debt) do and can play. This section will not just draw on the literature

and previous research the author has done, but also on in-depth interviews carried out with senior officials at the EIB and elsewhere, as well as with think tank senior colleagues, (see list in Appendix). Section IV concludes and makes policy recommendations.

A central idea is that instruments must be deployed in ways that maximize their development impact. Thus, the EIB, like all public development banks has a double mandate. Its main aim should be to maximize sustainable and inclusive development impacts (including economic, environmental and social impacts), while maintaining some financial profits or avoiding financial losses (see Griffith-Jones et al, 2020).

In this context, it is key that instruments should aim at appropriate risk sharing with private financial institutions and companies, rather than “de-risking”, which usually means transferring risks from the private sector to the EIB, and ultimately to EU governments and tax payers (see also Mazzucato and Mikheeva, 2020). It is important, where it is feasible, that if there is significant risk-sharing this is accompanied by profit sharing.

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This goes beyond funding or encouraging financing of individual projects, valuable and crucial as that is, to supporting missions (which may be cross-sectorial) to create new sets of activities, that imply sufficiently major transformations to achieve the urgent and required impact to meet the challenges of the climate emergency, whilst also addressing other pressing challenges such as the loss of biodiversity and unsustainable resource use.

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II. THE CHALLENGES FOR THE EIB

1. HELPING IMPLEMENT THE EUROPEAN GREEN DEAL; THE URGENCY OF MITIGATING CLIMATE CHANGE

A major and urgent challenge the world and EU economy face is climate change. Current estimates are that the planet is about one degree Celsius warmer when compared to the pre-industrial period. There is very strong scientific evidence that emissions of greenhouse gases caused by human activities are responsible for these temperature increases. To limit the catastrophic consequences of climate change, the global community signed the 2015 Paris Agreement to limit global warming to well below 2, preferably to 1.5 Celsius, compared to pre-industrial levels. A source of major concern is that the world is not currently on track, which increases the urgency of the task.

The European Union took the lead worldwide in shaping a concrete policy response. The EU announced the European Green Deal (EGD) at the end of 2019 as the roadmap towards a carbon neutral Europe by 2050. The EGD represents a major, essential and valuable shift of Europe's overall policy agenda, defining itself as a new growth strategy that aims to transform the EU into a fair and prosperous society, with a resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. The EGD, and the accompanying Investment Plan (EGDIP), thus defined the aim to make the EU into the first climate neutral bloc in the world by 2050. This has been followed, by several major countries, such as Japan and Korea assuming a similar target, with China committing to become carbon neutral by 2060.

To achieve these aims, it is important that there is an ambitious design of structural transformation across sectors in the EU economies, (e.g. in sectors like electro-mobility and renewable energy, and the infrastructure that supports them), that can have a meaningful and large impact on lowering carbon emissions. This goes beyond funding or encouraging financing of individual projects, valuable and crucial as that is, to supporting missions (which may be cross-sectorial) to create new sets of activities, that imply sufficiently major transformations to achieve the urgent and required impact to meet the challenges of the climate emergency, whilst also addressing other pressing challenges such as the loss of biodiversity and unsustainable resource use.

This policy also crucially requires mobilizing major resources to fund the very high level of investment required to achieve these aims. The European Green Deal initially assumed a lowering of GHG by 40% by 2030, which would require additional annual investment of €260 billion, till 2030, a very large amount. Furthermore, other estimates imply even far higher numbers. Thus, Wildauer et al, 2020, based on more ambitious assumptions, such as lowering GHGs by a higher amount-55% or even 65% lowering of GHG-, expanding further investment in energy efficiency beyond that contemplated in the EGD and including additional investment in R&D, estimate up to 855 billion Euros needed of additional annual investment to achieve a successful transition.

In fact, the European Council approved on December 11, 2020, the more ambitious commitment of lowering GHGs by 55% by 2030, which will require further additional investment, based on the European Union own estimates. Furthermore, a higher ambition, especially if aiming for 65% by 2030, but even the target of 55% now adopted by the European Council, would require a major effort at producing a decarbonized energy system by 2035-2040.

Naturally, this investment will need to be complemented by major policy changes, at the EU and national level; the EIB would therefore not just contribute by helping in a major way finance additional investment, but also in helping shape broader complementary policies.

EIB is an integral part of the EGD, with the role of funding agency and advisor, with programs structured around the key area of focus of the EGD and with a Climate Action Plan implying the EIB will be making 50% of their lending to climate change related activities by 2025. The leading role of EIB is nowadays widely recognized, having issued the first Green Bonds in 2007, stating that they have all operations of EIB under the EGD priorities and further developing their pioneering and forward-looking shadow price of carbon.

Shadow prices of carbon are a useful instrument for a clear analysis of the true climate costs of carbon and pollution when evaluating projects, that the EIB introduced over a decade ago, being the first development bank to do so, (Griffith-Jones and Leistner, 2018).

This methodology allows the EIB to evaluate the cost benefit of investments, including climate change externalities,

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particularly regarding infrastructure projects. For the purpose of these assessments, a high and consistent price of carbon is used. EIB is a pioneer in shadow market prices, which it introduced in the mid-90s, and for which it has a defined long-term roadmap. As of 2020, EIB shadow price of carbon is slightly above €30 per ton of carbon, price that will increase to €80 in 2021, €250 by 2030 and eventually €800 by 2050, with prices for the long-term future to be reviewed overtime.

A crucial part of the green strategy of the Bank is also the alignment to the EU Green Taxonomy, process which already started and to which EIB Green Bonds will soon be adapted. The alignment to the EU Green Taxonomy will be of fundamental help in sharing a common standard for green investments across all institutions, including hopefully financial intermediaries, through which the EIB lends, regardless of the role of each player. This would imply an understanding of green activities and the extent to which they contribute to greening the economy.

2. THE CLIMATE BANK ROADMAP 2021-2025

In 2019, the EIB board approved a very ambitious commitment in terms of alignment to the Paris agreement by the end 2020¹. The plan, approved by the European governments in November 2020, operating under the principles of the “Climate Bank Roadmap 2021-2025”, aims to transform the EIB into a “climate bank”, specifically by increasing the funding of projects related to climate mitigation and adaptation, and by ending funding for fossil fuel and airport expansion activities by the end of 2022.

With this important decision, EIB decided to commit 50% of its disbursement to sectors related to climate mitigation and adaptation by the end of 2025 and to mobilize €1 trillion of investment by 2030. Furthermore, by interrupting the funding for non-green activities by the end of 2022, EIB moves forward in its green transformation one year after announcing the end of funding for all unabated oil and gas projects by the end of 2021.

A core dimension of the EIB Board decision on the Climate Bank Roadmap is to ensure that “all financing

activities are aligned to the goals and principles of the Paris Agreement by the end of 2020”. As the EU Climate Bank, the EIB Group cannot support the Agreement with 50% of green finance if, at the same time, it undermines the goals with the remaining 50%. Thus, the EIB Group commits to ensure that all its activities do no significant harm to EU low-carbon and climate resilient goals. “The Climate Bank Roadmap” includes 4 work stream areas:

1. Accelerating the transition through Green finance. This concerns accelerating the green transition worldwide – increasing green investment and supporting long-term innovation.
2. Ensuring a just transition for all
3. Building strategic coherence and accountability
4. Supporting Paris-aligned operations

All these areas of actions are primarily aimed at increasing the level of investments and innovation while reducing the vulnerability, in a harmonized legal and policy framework.

The “greening-forward” process of EIB for the alignment to Paris 2020 is based on several pillars. One is to “*Leave no one behind*” inspired by the Just-EU transition program. Furthermore, the EIB moved its focus from climate actions and adaptation strategies to environmental sustainability. This change determined the inclusion of several areas, before excluded from the EIB strategy, such as biodiversity, marine economy, circular economy and other broad aspects of environmental sustainability. Further, EIB will only support R&D projects aligning to Paris agreement, e.g. stopping funding R&D investments in diesel combustion.

Four general messages emerge as to the role of the EIB Group. The **first** is the need to increase substantially adaptation efforts. A **second** takeaway is the need to increase investment in innovative green technologies – from early stage research through to pilot demonstration of technologies, complemented with support for new business models (battery storage, demand response,

¹ EIB approves €1 trillion green investment plan to become 'climate bank' (climatechangenews.com)

low-carbon hydrogen, e-charging). A **third** theme is the importance of driving down the long-term cost of capital in capital-intensive green infrastructure – urban public transport, rail and energy networks, waste and water networks, carbon sinks. A **fourth** theme is the importance of aggregation, scalability and replicability in ensuring investment at scale; this is particularly relevant for adaptation, energy efficiency and sustainable agriculture. The EIB Group is active across all these areas today, in the EU and developing countries, but far more needs to be done.

Key elements have been established for a coherent framework for the EIB Group's new climate and environmental commitments, towards climate action and environmental sustainability. These include: (1) establishment of a framework to ensure the Paris alignment of all new operations, underpinned by an updated shadow cost of carbon and (2) strengthening and widening of the system to track EIB Group climate action and environmental sustainability finance. To manage the changes required by the Paris alignment of new financing activities, the EIB Group will, however, continue to approve projects already under appraisal until the end of 2022. Some civil society organizations are critical of this latter point.

The EIB is also on track to fulfill the commitments made in 2015, in the run-up to the 2015 Paris conference (COP21). From 2016 to 2019, the EIB supported US\$84 billion of climate action investment, and is likely to have achieved its target of providing US\$100 billion in climate action finance by the end of 2020. Outside the EU, the EIB is on track to fulfill the commitment to increase its share of climate action financing in developing countries to 35% by 2020.

Less positive is that climate action and environmental sustainability investments have, thus far, not been tracked in the EIF. Nevertheless, the SMEs and enterprises in EIF's portfolio contributed to the EU's drive for green transition for many years, e.g. by investing in energy efficiency. **However, it seems urgent to establish tracking of climate action and environmental sustainability investments also in the EIF, even though it may be more difficult, as it acts only via intermediaries.**

The EIB Group, as reflected in the Climate Bank Roadmap, will strive to meet ambitious climate and environmental sustainability targets. However, delivery on these mandates will be contingent to (i) market

demand for climate and environmental sustainability financing, as the EIB will only be able to support these activities as long as new policies and regulations set the enabling environment and market actors embrace the low carbon transition; the 'fit-for-55' package announced in the European Commission's 2021 Work Programme to upgrade a wide range of policy tools in the course of this year in view of achieving the higher 2030 targets (-55% Greenhouse gas emissions compared to 1990) will be helpful for this purpose; and (ii) alignment of principles and standards across the financial sector, as well as other multilateral development and implementing partners. This is what the sustainable finance agenda is about. In the first half of this year a Renewed Sustainable Finance Strategy, is expected, following the one adopted in 2018.

We will illustrate the ambitions and limitations of the Climate Roadmap, by focusing on one of the more difficult sectors, transport, a sector in which the EIB has always been very active. As the Roadmap points out, alongside power generation, transport is the largest source of GHG emissions in the EU. In contrast to power generation and all other sectors, GHG emissions from the transport sector continue to rise. Transport emissions have risen by 30% since 1990, bringing the share of transport in total emissions in the EU from 15% to 22%. Approximately 70% of these emissions come from the road sector. Passenger cars and vans are responsible for the bulk of these emissions. Transport in the EU still relies on oil for about 93% of its energy needs, and since 2014 the oil consumption has been following an upward trend at an average rate of 1.9% per year.

Much of public transport is electrified (e.g., metros, most rail, rising share of buses). This is deemed as aligned. In the case of public transport bus fleets and trains, it is proposed to adopt the recommended criteria for making a substantial contribution under the EU Taxonomy, notably vehicles emitting less than 50 g CO₂ per passenger kilometer until 2025. This threshold would still potentially permit support for diesel buses and trains in conditions of high ridership, likely for some cohesion regions. This implies all EIB Group support for public transport would count towards EIB green target. It could be argued stricter criteria could be introduced for diesel buses and trains. For this purpose, it is crucial to develop a methodology that fully takes into account the extent to which support makes a contribution to climate / green objectives.

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The de-carbonisation pathway for the aviation sector remains less clear. The sector has three broad options to reduce emissions: demand management, efficiency improvements and the use of sustainable fuels such as battery electric, hydrogen fuel cells. However, in the short run, flying will remain a carbon intensive activity.

In light of this, it is proposed to focus EIB Group support on improving existing airport capacity through safety and security projects, and explicit de-carbonization measures, such as greening of ground service fleets and decarbonizing aircraft fuel. **Support would therefore be withdrawn from airport capacity expansions and conventionally-fuelled aircraft.** This seems a positive and important step from the perspective of pursuing low-carbon growth.

The de-carbonization pathway for the road sector, on contrary, involves modal shift, efficiency improvements, increased electrification, as well as the increased use of alternative fuels, driven in part through tightening emissions standards for new vehicles. Market development is encouraging, with battery costs having fallen significantly, implying, according to EIB, electric vehicles verging on becoming cost competitive with conventional technologies in some segments.

A high quality road network is seen by the EIB to help drive regional growth and employment. However, the stock of road infrastructure is unequally distributed across Europe. A legacy of low levels of investment, particularly prior to EU membership, translates into a need for investment into further development of today's TEN-T (Trans-European Network) comprehensive network. Dealing with this, requires a broad set of policies including promoting the shift to lower carbon transport modes. Effective road management and charging systems can help allocate road capacity efficiently and reduce damage to the environment. Even within a broad set of environmentally sound policies, specific investment in the roads network can, according to the EIB, have a zero or even positive impact on carbon emissions due to improved traffic flow. That in itself can trigger rebound effects: increasing the use of cars because it is becoming more convenient. The challenge is to identify the investments supporting economic growth whilst not increasing road traffic and significant GHG emissions.

The EIB proposes an adapted economic test to confirm

alignment of such projects, particularly when the road corridor is developed with attention to provision of alternative fuel infrastructure charging.

The EIB already employs a cost-benefit framework to appraise large road projects. However, to ensure climate alignment, this framework will be adapted. Demand forecasts will be adapted with due attention to penetration rates of electric vehicles. Net emissions from the project will be valued at the shadow cost of carbon (discussed above), consistent with the path towards the 2050 climate neutrality target.

Through this approach, the EIB Group will continue to support the development of the TEN-T road network in the EU, and strategic road corridors outside, where there is a strong justification for doing so. **However, the EIB notes it will be continuing to support robust TEN-T projects that meet the adapted economic test, including in regions where the network remains relatively underdeveloped.** The EIB Group will continue support for projects designed to improve existing traffic flows, or projects with strong safety elements. In the case of small roads, it is proposed to continue supporting investments within the context of a sustainable urban mobility and regional development plans. **A major problem of this EIB approach is that it does not seem to consider alternative, often much cleaner modes of transport, like railways run on electricity, especially before low carbon competitive versions of cars really materialize.** This is especially the case because infrastructure investments have long-term impacts for the next 3 or 4 decades.

The EIB Group finances vehicles largely as part of its support towards SMEs and mid-cap corporates. A case is made in the Roadmap for the EIB Group to focus support on vehicles meeting the recommendations for making a contribution under the EU Taxonomy. In the current context of economic downturn, and the difficulties of many smaller companies, it is proposed to adopt the recommended values for "Do No Significant Harm" criteria for cars, vans and trucks. This amounts to limiting support to below fleet average carbon emissions per km for passenger vehicles. Applied on a vehicle-by-vehicle basis, this ensures that the EIB Group supports the more carbon efficient half of the new fleet. Indeed, one could argue that EIB funding should be limited to the development of zero (or at least very low-carbon) vehicles

instead. Furthermore, as pointed out above, doubts can be raised about the desirability of this, especially when alternative modes of transport could be used.

The Climate Bank Roadmap has already caused some critiques from NGOs, particularly about its strategy accused of having under-ambitious goals, which it argues will not allow EIB to be fully aligned to the Paris Agreement till 2022, and not by end of 2020. NGOs also argue that in certain sectors, such as road building, EIB is yet not sufficiently ambitious from a climate mitigation perspective (Counter Balance, 2020, Transport and Environment, December 16 2020, and interview material). In fact, on roads, Counter Balance's conclusion is quite harsh, as it states that: the policy suggested in the Climate Bank Roadmap on roads is "merely a continuation of the current approach, tantamount to business as usual"; this also raises questions about the eligibility criteria in other sectors. EIB senior colleagues have argued (interview material) that such a position on roads is somewhat exaggerated, in the light of the expectation that cars using electricity or low carbon produced hydrogen, could become competitive and technically feasible in the relatively near future, in similar ways that solar energy has become in a fairly short period of time. However, there is an important degree of uncertainty in this latter expectation, and its success will be enhanced precisely if EIB and other EU institutions dedicate important resources (financial and other) to R&D, and supporting high- risk companies, that use such frontier technologies.

Transport & Environment, a leading environmental NGO, published a six-point plan for the EIB, to transform it more fully into ClimateBank (Transport & Environment, opcit) which included the following valuable suggestions for the transport sector:

Aviation and airports: The bank's financial support to the aviation sector should focus on airport and airplane safety and security, as well as pursuing zero-emission airports and aircrafts (i.e. sustainable synthetic electro-fuels produced from additional renewable electricity, with zero or near zero GHG emissions).

Vehicles and road transport: The EIB should align its Transport Lending Policy so that only zero-emission vehicle technology is made eligible for financial support (including the manufacturing of such vehicles). The expansion of road capacity is currently also eligible for

EIB support and this should be reviewed so that it is conditional on zero-emission infrastructure being made available along such routes.

Shipping: Research shows how liquefied natural gas (LNG) has negligible climate benefits and this should be reflected in the EIB's Transport Lending Policy. Maritime and inland waterway investment should focus on zero-emission technologies, i.e. battery-electric and renewable hydrogen/ammonia-based propulsion systems (both vessels and infrastructure, as well as R&I).

It should be emphasized that Counter Balance and other civil society organizations, like Transport & Environment however, do recognize that the Roadmap is a step forward to make EIB the EU Climate Bank, and that the priorities from the roadmap are likely to reinforce the EIB's Alignment with the Paris Agreement, increasing its contribution to carbon neutrality by 2050. Furthermore, they note that the Roadmap will strengthen the leadership of the EIB on climate, with demonstration effect on other banks. This should be easiest to operationalize when the EIB channels funds through national development banks, as it increasingly does; however, though more challenging, instruments and monitoring mechanisms need to be developed also for impacting EIB lending, and EIF guarantee provisioning, via commercial banks. Specific commitments are also welcomed, such as the end of the EIB financial support for the expansion of airports, which is indeed quite a radical step.

In November 2019 the EIB board had also approved the Energy Lending Policy, which not only imposed to stop the funding of investments related to fossil fuel by the end of 2021, but also supports the long-term energy transition process.

In light of these changes, and with the greater policy steer offered by the InvestEU compared to the EFSI, there is the need of further expanding instruments to support the green transformation, including in particular those discussed in detail in the next section, like equity and quasi-equity instruments (see also Griffith-Jones and Naqvi, opcit, for more details on these and on the role of the EIB in EFSI and InvestEU).

While EFSI was designed well after the 2008 economic crisis began, hence it was primarily aimed at counterbalancing the already visible negative consequences on

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long-term investment necessary for structural transformation, and especially in its initial phase, it had a more counter-cyclical aim, particularly in poorer and more crisis hit member countries, discussions around InvestEU began before the beginning of the COVID-19 pandemic. Hence, while EFSI was more a response to crisis measure, InvestEU was initially designed with a more long-term and structural perspective, and not necessarily in light of an emerging crisis, hopefully allowing for greater policy steer for green transformation. Naturally COVID has added its own major challenges, as the magnitude of the economic crisis is even bigger than the Eurozone debt crisis and, added to that, there are the major needs for health funding. (see below).

A problem is that in recent decisions, the size of InvestEU has been quite severely curtailed, by over 40%, from the original proposal, (interview material). This seems unfortunate, as this cut will limit the ability of the EIB to provide finance for economically riskier and more innovative projects, including in those that will contribute to new ways of greening the economy. An example is the EIB supporting funding of research and innovative projects using hydrogen as fuel, based on renewable energy rather than on gas, with the former being presently more expensive, but far less carbon intensive and therefore more desirable from the perspective of a green transformation.

EIB currently finances both public, - and mainly- the private sector. For this task is very important to continue catalyzing additional resources, by mobilizing capital from the private sector.

An interesting role of EIB is as advisor of GEEREF - Global Energy Efficiency and Renewable Energy Fund. This external vehicle, which began its operations in 2008, is endowed with €242 million of capital, €142 million of which is from the public sector (governments of Germany and Norway and the EC among the largest) and €100 million from private investors. The fund's objective is to invest in private equity funds for green and renewable energy across emerging and low-income countries with a role of anchor investor, catalyzing additional private capital. The GEEREF is allocated across 16 underlying funds, invested in more than 150 projects. An additional aim of the fund is also to help for private sector investors to become familiar with the market and sector in emerging and especially low-income economies, so to be ready to invest when the market is more developed. Although only

limited to developing countries, hence outside the EU context, GEEREF is a very interesting example of pooling resources from development banks and private investors. (Griffith-Jones and Leistner, 2018); similar vehicles working as anchor investor could maybe also be adapted for new emerging sectors in developed economies, hydrogen for example.

The Sustainable Europe Investment Plan, of which InvestEU is part of, is the EGD's investment pillar. It is the tool to fill the investment gap outlined in the previous section. As mentioned above, the Sustainable Europe Investment Plan aims to mobilize investment projects of 1 trillion Euros over 2021-2030.

3. COVID AND NEXT GENERATION EU

In May 2020 the European Commission announced plans to recover from the COVID-19 crisis under the label "Next Generation EU". According to these proposals, approved by the European Council in December 2020, the Commission will borrow €750 billion on financial markets and use these funds to help member states through the recovery phase, via both grants-reaching €390 Billion-and the rest in loans. A proportion -37%- of these additional funds is earmarked for green projects, as well as increasing the Just Transition Fund and the InvestEU. When these proposals went ahead, and received approval by the European Parliament, they created the potential to provide fresh resources for the fight against climate change in Europe.

A key broad problem is the limited size of the European Budget in general. The additional €750 billion amount to 5.4% of EU 27 GDP for 7 years. Fighting off the most severe recession in a century while becoming a carbon neutral society will require more. This highlights the crucial role EIB and member states, as well as their national development banks, will have to play in both efforts, and the need they have for additional resources for the task.

A key aim of the Sustainable Europe Investment Plan is to enable green investments by the private as well as the public sector. Thus, public funds can be used to encourage green investments via a number of instruments, for example well designed guarantees (InvestEU scheme) in order to facilitate projects which would not be viable otherwise, if too risky or uncertain. Here the EIB would

play a key role, as will national development banks (for an analysis of those instruments in the case of the EIB under EFSI, see Griffith-Jones and Naqvi, opcit).

As pointed out above, another major challenge for the EU, is the support for health systems and the economy during the major COVID crisis, as well as for economic recovery during and after COVID. Naturally that needs to be closely linked to a major structural transformation to build a more low carbon as well as a more inclusive economy. It is crucial that the additional funds channeled linked to COVID, through the EIB and other EU mechanisms, are done so, where possible, in ways that also benefit the green transformation. This was helped via the 37% earmarking and the ‘no significant harm’ principle described above.

The several challenges brought by the COVID-19 pandemic also raised the question on whether some of the climate targets and restrictions should be relaxed for a faster recovery of the economy. These measures would however be short sighted and would risk to overlook the major problems and probably bigger crisis, especially in future of climate change and environmental sustainability. Currently, EIB did not divert from its climate goals and, in some cases, the response has been relatively more positive, for example by accelerating the gas transition process. However, it should be emphasized that gas is an intermediate ‘technology’, better than other fossil fuels, but not carbon neutral (except when it is ‘green gas’)

A particularly important challenge in COVID times is the massive increase in debt that would be required to facilitate maintaining levels of investment. Therefore the case for using equity instruments, including by the EIB, has become much stronger.

Within the EU, (as in the rest of the world) as a result of COVID-19, at firms’ level, there has been a sudden drop in revenues and only partly adjustable costs have led to a fast depletion of firms’ cash buffers, even in the context of strong policy intervention. Several studies have shown a large share of EU firms facing liquidity shortfalls during 2020 (Banerjee et al. 2020, Demmou et al. 2020).

In an interesting exercise EIB, estimates that even after strong policy intervention, 51%-58% of EU firms faced liquidity shortfalls after three months of lockdown. As Revoltella et al, 2020 conclude, “*these losses create a*

difficult trade-off for firms between protecting investments and increasing their leverage, via borrowing. To properly accompany the recovery, there seems to be increasing consensus that policies to ease access to credit should be matched by enhanced instruments for long-term, equity-type financing. Here EIB and other actors could play a key role”.

It is interesting that in interviews carried out with other development banks, the need for greater use of equity and quasi-equity instruments has also been raised.

Under assumption of a U-shaped recovery, (which may be already optimistic given third wave of COVID, though hopefully facilitated by effective deployment of vaccines), EIB assessed the possible medium-term strategic choices for firms using a dataset of more than 1.3 million corporates in EU, accounting for around €3 trillion of assets. **The median reduction in net revenues could range between 5% and 10%.** SMEs would suffer a reduction between 6% and 11% of assets. Larger corporates would be significantly less impacted, from 2% to 4% of assets. Weighting the estimates by size reduces the overall decline in net revenues to 4% to 8% of total assets, between €1.9 trillion and €3.4 trillion, from 13% to 24% of EU GDP.

If all profits are retained, lower net revenues can result in reduced cash balance, increased indebtedness, and lower investment.

Revoltella et al, (opcit) estimate that EU corporate investment would shrink by 31% to 52% while corporate indebtedness rises by 4% to 6% of GDP. The EIB published in January 2021 its’ Investment Report 2020/2021: Building a smart and green Europe in the COVID-19 era, which confirms these concerns. Based on surveys with EU companies, it confirms that: investment fell by 19% in second quarter of 2020 compared with a year earlier, and EU firms revised down short-term investment plans (45% of firms expect to reduce investment in the coming year while only 6% expect to increase it plus climate change will not be spared: 43% of firms that plan climate-related investment in the next three years say the pandemic will negatively affect their investment plans).

The EIB Investment Survey shows two-thirds of EU corporate investment is financed internally. One option is that, after drawing on cash positions, around two-thirds

II. THE CHALLENGES FOR THE EIB

of the losses in net revenues (which, after drawing on cash represent 10% of GDP) would be absorbed by lower investment, a reduction of 7% of GDP, equivalent to a decline of 52% in corporate investment. Debt would also contribute to fill the gap, rising by around 4% of GDP.

An alternative scenario is that corporations increase their access to external finance. Assuming all firms tap external finance the share of external financing could rise from one-third to 60% of total financing. Investment could be reduced less than in previous scenario by 4% of GDP (a fall of 31% compared to the level in 2019) but indebtedness would increase by 6% of GDP. The fall in corporate investment would be around twice that recorded during the Eurozone debt crisis, when corporate investment fell by 19%.

While preserving access to credit is key in the short term, absorbing more debt poses problems for a sizeable part of the corporate sector in the medium term, due to leverage constraints. A considerable number of European firms are likely to reach excessive levels of financial leverage as the COVID-19 crisis unfolds. Thus, a large share of EU firms could start the recovery with deleveraging pressures. This would have negative consequences on these companies' ability to carry out investment. Pressures could increase on commercial banks, if firms unable to service their debts.

Publicly funded equity-type instruments complement loans and guarantees to alleviate the excess leverage problem. The increase in corporate leverage due to the COVID-19 crisis can be limited by the use of equity-type instruments, which absorb losses but also share in any future profits. However, it is not easy to find effective equity instruments, especially for SMEs whose owners are often reluctant to allow external ownership. The EIB has long experience as anchor to both the EU venture capital and venture debt markets. Unfortunately, equity-type instruments envisaged through the new Solvency Support Instrument in the Next Generation EU package were not approved, but hopefully could be somehow replaced.

The emergence of a trade-off between leverage and investment suggest some desirable sequencing in terms of policy response. While at the inception of the crisis, deferrals and grace periods (debt standstills) played a role in preventing firms' liquidity shortfalls, those measures are temporary. Measures to support access to credit

followed, but create risk of over-leveraging. They should be matched with enhanced instruments for long-term equity-type financing, valuable to avoid excessive corporate leverage and to preserve financial stability, including of banks. We therefore emphasize in this study equity and equity type instruments.

Both in interviews carried out and in some recent literature, there is strong emphasis on equity instruments, and the importance of significantly expanding them in the European Union, particularly during and post-COVID. There is a relative under-development of equity markets in the European Union, especially in relation to the US. It could be characterized as a market failure or more precisely a market gap. Therefore there seems to be a strong case for a public intervention that would help develop the equity markets in the EU, particularly for SMEs.

For example, Boot et al, 2020 propose a European Pandemic Equity Fund (EPEF). A more general, alternative name could be a European Equity Fund (EEE), but we will refer in this section, to it as EPEF. The EPEF would undertake equity-like investments, particularly for small and medium sized enterprises (SMEs), which generally tend to oppose the outright dilution of existing control rights that occurs if common equity is issued. Since such firms are the backbone of Europe's economy, their funding and their concerns are of great importance, especially in COVID times, but also more generally.

The proposed scheme trades an initial cash flow injection by the EPEF into the firm against a proportionate participation in future gross earnings ('value added') or net earnings ('profits'). Moreover, the firm can terminate its annual payment of surcharges by paying, after a number of years, a fixed amount to the EPEF.

Amongst the criteria posed are:

1. EPEF's capital is jointly raised by member countries, allowing for some form of risk sharing across firms and countries. It would also allow for cross-fertilization of skills across EU member countries, which is very valuable (interview material). This cross-border (EU dimension) would be very central
2. The risk-absorbing capacity of the EPEF should be substantial, thus requiring the fund to have low leverage, and high initial financial contribution.

3. The EPEF organisation would be run by professionals, using existing institutional infrastructure where possible.
4. Eligibility criteria for investment by the EPEF should be carefully set, such that adverse selection concerns (e.g. firms that were most probably not viable even before the crisis hit) are addressed. Uncertainty in COVID and post-COVID times does make the task of choosing companies to support more difficult, as unclear whether they will be viable in the long-term, due to the COVID shock, but clearly possible.

The general characteristics of the cash-against-surcharge scheme are as follows. Initial payments (from the EPEF to firms) are transfers – i.e. they carry no unconditional repayment obligation as a traditional debt claim would. Conditional on the firm being successful again in future years, the recipient firm would pay a surcharge to the fund. These payments flow directly into the EPEF, representing a conditional quasi-return to the EPEF and repayment of the initial cash transfer. To make the instrument attractive to firms, and reinforce temporary nature of the scheme, firms would have right to buy out the EPEF in the future. EPEF assumes both the risk of a loss of the initial transfer amount, and has the potential for earning future gains, (“capturing the upside”) through receiving surcharges.

The cash-against-surcharge contract makes its performance dependent and renders the scheme equity-like. As a consequence of the initial transfer, firm leverage (and thus firm default risk) would decrease, in contrast to a loan of the same amount.

Boot et al (2020) suggest that from the perspective of speed and accountability, it may be helpful to entrust a well-established European agency with setting up, and eventually managing, the EPEF. The agency would act as a trustee, and the EPEF would not be part of the agency’s balance sheet. The most likely candidate they suggest for filling this role is the European Investment Bank (EIB). Indeed, either the EIB or possibly better the EIF (interview material, Griffith-Jones and Naqvi, 2020, opcit) would be very well placed, given their expertise and extensive track record, to play such a role. The EPEF would need to hire staff with different skills to existing ones at EIB and EIF to fulfil their functions well.

Boot et al (2020) also suggest possible backing by the EU budget for the EPEF itself. The possibility for the European Commission to pledge current and future allocations from the EU budget towards its capital would be a way the EPEF might obtain direct funding. This source of equity funds for the EPEF could be augmented by voluntary (additional) contributions from some member states. These would not be transfers (subsidies) between countries, because to the extent that the scheme would allow for positive value generation by the EPEF, over the years, those returns would also be shared in proportion to the EPEF shareholdings.

In addition to its paid-in equity capital, the EPEF could also issue bonds. It could be opened for risk-bearing equity contributions by private investors, -e.g. institutional investors in Europe, such as pension funds or insurance companies, which have massive assets, in search for long-term investment opportunities. Today, these institutional investors have no or limited direct, equity-based access to Europe’s SME market and its returns – and the EPEF could provide such an instrument. Furthermore, the EPEF could co-finance its activities with one or more private capital funds, to expand its leverage.

It is interesting that regarding equity instruments, the European Commission started a new pilot under DG for Research and Innovation. The European Innovation Council (EIC) will take direct equity in startups, early-stage companies (interview material). This is a valuable, though first step for creating more equity instruments at EU level. (for details, see Box below)

II. THE CHALLENGES FOR THE EIB

THE EUROPEAN INNOVATION COUNCIL (EIC)

Initially designed following the DARPA experience in US, the European Commission designed the initial pilot program for the period 2018-2020, and the full implementation with the 2021-2027 Horizon Europe, under the Directorate-General for Research and Innovation (DG RTD). The aim of the program is to take direct equity in start-ups and early-stage companies, supporting industrial sectors requiring large amount of capital during their development stage and supporting the commercialization of high-risk, high-impact technologies in the European Union.

The 2018-2020 pilot program disbursed around €3 billion across three main subprogrammes ([Funding | EIC pilot - Research and Innovation - European Commission \(europa.eu\)](#)):

- EIC Pathfinder Pilot: to promote collaborative, inter-disciplinary research and innovation on new technologies across consortia of entities from State members and associated countries.
- EIC Accelerator Pilot: to support the development and commercialisation of new products, services and business models of high-risk and innovative SMEs.
- Fast Track to Innovation (FTI): for consortia of entities, the program is dedicated to mature ground-breaking technologies, concepts and business models which are close to market, hence requiring a quick market uptake.
- EIC Horizon Prizes: awarded to those meeting a defined challenge without having received clear indication on how to achieve it.

On 6th January 2021, EIC began its operation with an initial investment of €178 million, invested in 42 companies ([European Innovation Council Fund: first equity investments \(europa.eu\)](#)).

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Equity and quasi-equity instruments also allow significant policy steer, to help channel both EIB resources towards specific sector or missions, for example toward innovation and especially low-carbon development...

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4. THE GENERAL CASE FOR EQUITY OR EQUITY -LIKE INSTRUMENTS

More generally, by managing a diversified portfolio of a wide range of financial instruments, public development banks, such as the EIB, help crowd in private investments in different modalities and assuming different levels and types of risk, adapted to varied categories and stages of activities. From the perspective of development banks like the EIB, there is the important issue about how future returns can be shared. Unlike loans, equity financing allows the EIB to capture the upside potential. Assuming more risks via equity may require significantly higher provisioning against EIB capital, (this may be problematic, especially if EIB capital is not increased by member states; as we argue below, such an increase in EIB capital would also be desirable for other reasons), but has the advantage that if the company/project becomes very profitable, the EIB will obtain part of the profits, which it can use to cross-subsidize socially or environmentally desirable operations and/or increase the EIB's own capital or reserves, leading to future increased ability to carry out larger or more transactions.

Equity and quasi-equity instruments also allow significant policy steer, to help channel both EIB resources towards specific sector or missions, for example toward innovation and especially low-carbon development, the latter particularly relevant in the context of this paper, and in the context of the EIB becoming a Climate Bank.

It may be interesting also to evaluate whether there is a need for so much higher capital requirements for equity and equity like instruments, as is currently the case, examining the record of these instruments. Though they clearly pose higher risks, they also can –if well structured- offer high potential profits. If this is the case, and is proved by their record, the case can be made for lower provisions of capital than is currently used, providing then an incentive for institutions like the EIB and EIF, to use equity or quasi-equity like instruments more.

Currently the EIB does not itself do equity investment (though as we discuss in detail below it is increasingly active in quasi-equity instruments, like venture debt); equity investment is nevertheless done by the European Investment Fund (EIF) and focused on SMEs. However, EIF invests only through funds, in which it

is a limited partner. This makes the issue of using EIF equity instruments for policy steer and monitoring for their effectiveness in achieving the green transformation more difficult and indirect. However, clear directionality in the use of these indirect instruments, both for equity and loans, should also be increasingly implemented to enhance their effectiveness for the green transition.

Another valuable set of instruments in which EIB is active, which have some equity elements is so-called thematic finance. A problem is that these instruments will be the first ones to suffer with the budget cuts to the InvestEU and other relevant budgets (interview material).

Thematic transactions, for example, will include higher-risk and demonstration projects in areas of strategic importance but which have limited access to funding from traditional sources, such as support for operations under the Innovfin Energy Demonstration Projects instrument. This provides loans, loan guarantees or equity-type financing to innovative demonstration projects in the fields of energy system transformation, including renewable energy technologies, smart energy systems, energy storage, carbon capture and storage or carbon capture and use, helping them to bridge the gap from demonstration to commercialisation. Such projects are key for the transformation to a low carbon economy.

Deep-technology sectors require lots of capital for their development stage –due to high technological and market risks. Significant funding is required in the early stage, which will bear fruit in the long term. Venture capital (VC) is not the most appropriate model for funding – particularly in Europe where it is small in absolute terms, though growing, and small in ticket size, plus short-term in its vision. This led to the need to find additional instruments to have funding for non-bankable projects - like thematic ones – with a first loss guarantee that is sufficiently high – to help provide long term patient capital before VC comes in.

Ticket size of thematic loans goes from €7.5 million (average €15-30 million), but during COVID have gone up to €75 million in one company (funding for COVID vaccine to German Curevad). Thematic instruments were launched 4-5 years ago; it was important that these instruments were already developed before COVID. Similarly in the energy sector, the EDP Energy Demo Project for breakthrough technologies was established 7 years ago;

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the instruments are ready to be used, so easier to roll out, and apply them on a significant scale to contribute to the green transition – so now EIB has only to scale them up.

If the objective is to support innovation and innovative business models, especially for activities that reduce carbon emissions, a good instrument seems to be equity financing, either directly in individual companies, or through a diversified portfolio. While some of the businesses seeking investment may ultimately fail, the gains from a few winners should compensate the failures of the losers, and, as mentioned above, may generate significant net profits.

There are other mechanisms through which DBs can “capture the upside”, such as debt instruments with equity kickers (e.g. warrants). One such instrument being currently successfully applied mainly by the European Investment Bank (EIB) and other DBs is venture debt to support “innovative enterprises”. If a business does well, the EIB gets part of that higher profit as compensation for taking a higher risk. This is usually done by a loan that is converted into an equity-linked instrument (warrants) or profit participation. Venture debt also has the virtue of financing the growth stages of companies, for example for scaling up from pilot to mass manufacturing, further development of R&D, and international expansion.

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*(Thematic loans)
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III. EIB INSTRUMENTS, INCLUDING FOR THE GREEN TRANSITION

Green Transition represents one of the most important areas of disbursement for EIB, with €170 billion disbursed for investments related to climate action and environmental protection since 2012 and with almost one-third of the financing for investments in climate action in 2019. Financial resources have been distributed through a variety of instruments, depending on the goal of the investment, the risk of the project, but also the type of companies or public institution participating in the investments.

Direct loans are usually disbursed to large companies and for big projects while second-tier financial products are offered to small companies and for small projects. Direct loans are particularly valuable, for example, for carrying out a green “industrial policy”, as the EIB itself decides which projects/programs it will fund, giving it the ability to implement clear green transformation criteria in their decision-making process. Further, EIB can use concessional resources, if there are clear externalities, e.g. environmental, and apply them in financial instruments, which are not easily available in the private financial markets. Financial and technical advisory services complement the financial products offered by EIB.²

While traditional financial instruments, as loans, have been used for many years, some more recent and innovative financial instruments increase the offer of products able to also capture the upside when the investment is profitable. This allows a reflow of resources that could be reinvested in other projects in the future, making funding projects in the long term, for example for the green transition, more sustainable from a fiscal perspective.

The focus of the next section is on quasi-equity instruments offered by the EIB, specifically Venture Debt, an interesting financial product combining the possibility to both absorb the risk of the company, but also to share the upside.

Currently, EIB is the institution in the European Union disbursing the highest amount of resources per year in VD products. Although EIB did not specifically design this instrument initially for green investments, positive lessons and best practices from other sectors are and could increasingly be adapted in light of the sharply increasing green mission of the bank.

1. VENTURE DEBT IN EUROPE AND THE ROLE OF EIB

Venture debt (VD, hereafter) is an instrument for financing start-up companies, combining the characteristics of both Venture Capital (VC, hereafter) and debt, that allows young and fast-growing companies to raise additional financial resources without further dilution. This financial instrument can be structured both as short-term bridge loans and as long-term and growth-oriented loans, usually includes a grace period before the beginning of the repayment and also includes a small fraction of equity as warrant. VD products were initially introduced in the USA in the '70s and became popular by the end of the century. In Europe, VD instruments became popular 10 years after the surge in popularity in the USA.

VD is a quasi-equity type of instrument that is usually issued to start-ups immediately after an equity round from a VC fund. VD instruments can also be disbursed to companies between their initial financing phase (angel investors or other sources) and before their access to debt or public equity markets. VD products are issued to companies as loans, for which the remuneration is linked to companies' performance, as the remuneration of equity investments. **Recipients are usually new and fast-growing companies lacking the capacity to repay traditional loans. This can of course include companies in the area of the green transformation.**

VD represents an alternative to traditional debt instruments for high-growth start-ups that lack the traditional requirements to obtain bank loans (collateral, operating cash flow) and do not want to further dilute the ownership. US and European Venture Financing markets are the largest in size, although they are very different. Table 1 below reports the main figures of the Venture Financing markets in the USA and Europe.

² How to get help for your climate project (eib.org) – accessed on 16/12/2020

III. EIB INSTRUMENTS, INCLUDING FOR THE GREEN TRANSITION

TABLE 1 - Venture Financing markets in the USA and Europe, 2018

	VENTURE FINANCING €BILLION	VENTURE FINANCING % GDP
US	102	0.53%
EUROPE	21	0.13%

Source: EFSI Equity Strategy Corporate Finance – MGF to date (eib.org)

In 2018, the total amount disbursed in Venture Financing (VF, hereafter) in US was 0.53% of total GDP, equal to €102 Billion. In Europe, the share of VF is lower than in the US market, accounting for only 0.13% of the

sum of the GDPs of all European countries. Looking at the composition of VF, specifically at VC and VD, Table 2 below reports the figures for the US and European market.

TABLE 2 - Venture Capital and Venture Debt in the USA and Europe, 2018

	US	EUROPE
VENTURE FINANCING		
€BILLION	102	21
VENTURE CAPITAL		
€BILLION	86.7	20
% VENTURE FINANCING	85%	95%
VENTURE DEBT		
€BILLION	15.3	1.05
% VENTURE FINANCING	15%	5%

Source: EFSI Equity Strategy Corporate Finance – MGF to date (eib.org)

In both USA and Europe, VC represents the largest share of VF, although with quite remarkable differences in terms of total disbursement. In 2018, the overall amount of resources disbursed through VD instrument in the USA was equal to €15.3 billion, equal to 15% of the entire VF resources. The same year, in Europe, accounted for only 5% of the total VF, with an overall amount of €1billion.³

In USA, there are many large banking and non-banking VLs. In Europe, where there is a lower number of VLs, the players that have disbursed the highest overall amount of VD products is Kreos, an English private growth debt firm, that disbursed over €2 billion since the beginning of its operations in the yearly 2000, followed by the European Investment Bank. We can therefore see that the EIB is a very important actor in the VD debt.

2. EIB IN THE EUROPEAN VENTURE DEBT MARKET

EIB is the second largest player in terms of overall disbursement in the (short) history of the VD market in Europe and the first institution in terms of yearly disbursement. It began its VD activities in 2015 and, after one year, moved its VD product under the Juncker Plan (EFSI), where it remains up to this moment. EIB is the main VL institution in terms of yearly disbursement, with more than €600 million disbursed, on average, every year.⁴ All VD transactions of EIB are backed by the financial guarantee under the European Fund for Strategic Investments (EFSI). EIB offers long-term VD products for innovative, fast-growth start-up companies in the late VC and growth stage,⁵ usually excluded from commercial banks' financing. Over the period 2016-2019, EIB disbursed €1.9 billion in VD operations for more than 100 companies across 22 EU countries. Table 3 below presents the main characteristics of the VD product offered by EIB.

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(Venture Debt)
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3 The Venture Climate (sec.gov) – accessed on 24/11/2020

4 EIB remains the largest venture debt provider in the EU – accessed on 24/11/2020

5 Quasi-equity: A new financial structure for a new challenge (eib.org) – accessed on 24/11/2020

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TABLE 3 - Main characteristics VD product offered by EIB

CANDIDATES	Companies with up to 3000 employees
COMPANIES' STAGE	Late venture capital/growth stage
KEY REQUIREMENTS	High growth investment in R&I
DISBURSEMENT PER OPERATION	€7.5 - 50 million
CO-INVESTMENT	Up to 50% of eligible project costs
INTEREST RATE	3% - 10%
APPROVAL	3 - 5 months
AVAILABILITY	Up to 3 years
REPAYMENT	<ul style="list-style-type: none"> - 4 to 6 years after drawdown - Performance based
RETURN STRUCTURE - DILUTION	< 10% equity
PRICING	<ul style="list-style-type: none"> - Cash Interest - Compound interest (PIK) - Warrants - Profit participation - Etc.

Source: EIB Venture Debt and Deloitte (2019)⁶

⁶ Deloitte (2019): <https://www.eib.org/attachments/general/events/eib-venture-debt-market-study.pdf>



Eligible candidates include companies with up to 3000 employees investing in growth-enhancing projects, for which EIB provides 50% of the necessary resources, leaving space for co-investment with either companies' own resources or with third-party investors. Contracts are usually approved within 5 to 7 months and financial resources from VD instruments are usually up to 3 years after signing the contract.⁶ Products are structured with an initial grace period of 4 years before the first repayment and another grace year before the beginning of the remaining regular repayment instalments.⁷ VD products are also structured including a small fraction of equity due to a warrant; other modalities of servicing venture debt are usually cash,⁸ but also profit participation and/or cash/capitalized interest (compound interest).⁹

Compared to traditional VD instruments, where the dilution is usually lower than 1%, the VD product issued by EIB involves a greater share of potential debt conversion into equity via a warrant (up to 10%, or even more, whereas market providers only allow up to 1%); these warrants, however do not imply any active role, nor direct involvement, of EIB in the daily management of the funded company. However, the EIB could, as in all direct instruments, exercise discretionality in the type of sector, or other criteria (including carbon intensity) used for approving such transactions.

The amount of disbursement per VD operation is between €7.5 million and €70 million, with an interest rate between 3% and 10%. Table 4 below reports the top 5 recipient countries in terms of VD instrument issued by EIB, over the period 2016-2019.

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7 EFSI Equity Strategy Corporate Finance – MGF to date (eib.org) – accessed on 24/11/2020

8 Deloitte (2019); <https://www.eib.org/attachments/general/events/eib-venture-debt-market-study.pdf>

9 EIB Venture Debt – accessed on 24/11/2020

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TABLE 4 - Top 5 recipient countries over the period 2016-2019

COUNTRY	% DISBURSEMENT	€MILLION
France	24%	456
Germany	23%	437
Sweden	8%	152
Finland	8%	152
Italy	6%	114
TOTAL	69%	1.3B

Source: EFSI Equity Strategy Corporate Finance – MGF to date (eib.org)

France and Germany are the countries receiving almost half of the overall disbursement in VD products, having received more than €400 million each over the 3 years of EIB VD operations. Sweden, Finland and Italy are the remaining top 5 countries, which have however received one third compared to the financial resources received by France and Germany.

In partnership with the European Commission, EIB aims at increasing investments in Research & Innovation (“R&I”). The focus on VD operations is around 3 areas: *i)* Life Science; *ii)* Information and Communication Technologies (ICT); and *iii)* Engineering.¹⁰ Table 5 below reports the list of macro and associated micro sectors of interest of EIB operations.

More specifically, the sectors of intervention include healthcare, pharmaceutical, biotech, IT (including software), clean tech and engineering and automation. **An important question is whether the sectorial focus could have bigger emphasis on sectors directly relevant for the green transformation.** Table 6 below reports the share and total amount of VD disbursement over the period 2016-2019, by sector.

¹⁰ EIB Venture Debt – accessed on 24/11/2020



TABLE 5 - EIB sectorial focus, by macro and micro sector

MACRO SECTOR	SECTOR
LIFE SCIENCE	Biotechnology and drug development
	Medical technologies
	Medical services
ICT	Software with emphasis on cybersecurity
	ICT Equipment
	IT Services and e-commerce
ENGINEERING	Advanced manufacturing and industrial innovation
	Energy and cleantech
	Chemicals

Source: EFSI Equity Strategy Corporate Finance – MGF to date (eib.org)

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An important question is whether the sectorial focus could have bigger emphasis on sectors directly relevant for the green transformation.

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III. EIB INSTRUMENTS, INCLUDING FOR THE GREEN TRANSITION

TABLE 6 - Amount disbursed per sector, over the period 2016-2019

SECTOR	SHARE OF DISBURSEMENT	€MILLION
LIFE SCIENCE	44%	840
ICT	30%	570
ENGINEERING	26%	490
TOTAL		€1.9B

Source: EFSI Equity Strategy Corporate Finance – MGF to date (eib.org)

Life science is the sector that has attracted more financial resources, receiving €840 million over the period 2016-2019, while ICT and Engineering are, respectively, the second and third macro sectors.

3. EIB AND VENTURE DEBT IN LIGHT OF THE COVID-19 PANDEMIC

The COVID-19 pandemic represents a worldwide challenge for companies, facing an increasing need of liquidity in the short-term and long-term capital for a prompt recovery as well as future investment. Development banks all over the world are providing short-term financial resources, to absorb the drop in revenues caused by the 2020 pandemic, through loans, grants and guarantees.

Pure equity instruments, on the contrary, have not been common during the first period of 2020. Among the reasons explaining why pure equity instruments have been so far little used is the difficulty to correctly price equity, particularly during periods of such high uncertainty; the difficulty to roll out equity investments compared to loans;

higher associated costs of transaction; and special types of skills associated with equity instruments. One of the downsides about the use of loans instead of equity instruments is the risk to increase companies' leverage as a consequence of the increased debt, making companies insolvent.¹¹ In this context, quasi-equity instruments might represent a valuable solution; linking the remuneration of the financial instrument to companies' performance, it would be possible to absorb the downside (losses) but also the upside (profits), when economies will recover, and if companies do well.

From the perspective of the EIB, and indeed of other development banks, as well as commercial actors, having an equity kicker or warrant allows them to capture the upside of successful companies, thus sharing the profits, as well as the risks; such additional profits would increase reserves and/or capital, thus allowing an expansion of future operations (Griffith-Jones and Naqvi, opcit). However, for this to occur at a meaningful level, the scale of the equity kicker or warrant needs to be a sufficiently large proportion of each transaction.¹²

As a first response to the COVID-19 pandemic, EIB launched a guarantee fund of €25 billion, "Pan-European

¹¹ In Europe, companies indebtedness already increased by 4% to 6% of GDP during the COVID-19 pandemic - EU firms in the post-COVID-19 environment | VOX, CEPR Policy Portal (voxeu.org) – accessed on 25/11/2020

¹² VD instruments also have the additional advantage that they could both be structured as short-term bridge loans, but also as long-term growth enhancing instruments, covering both the immediate companies' need for liquidity and the need for capital to promote investments.

Guarantee Fund”, that it is hoped will mobilize €200 billion, assuming a leverage of 8. Of this, 7% of the resources are destined to VC and VD instruments in support of SMEs and midcaps.^{13,14}

The “Pan-European Guarantee Fund”, managed by EIB, has been created with contributions from all EU States, which participated proportionally in the guarantee fund according to their EIB share membership.¹⁵ EIB, as the majority of Development Banks, does not usually cover short-term working capital type of loans; during the COVID-19 pandemic however, EIB as many other DBs around the world, realized the urgent need for liquidity and working capital, and adjusted their instruments.

On the other side, expecting a fall in companies’ investment in Europe as well as the major needs for investment

for a green and just transition, there is also the increasing urgency of focusing on the long-term recovery phase, with appropriate instruments able to foster the recovery, absorb the downside, but also share the upside. In this regard, the fact that the VD product issued by EIB requires greater potential equity participation compared to traditional VD products is a key and positive factor for the long-term sustainability and, at least partial, self-subsistence of the fund, as well as the possibility of encouraging high priority activities, such as health and the green transformation.

A very successful example of VD by EIB is the loan made to German BioNTech, which has resulted in the first vaccine against COVID internationally approved and used. (see Box below)

AN EXAMPLE OF QUASI-EQUITY PRODUCT DURING THE COVID-19 PANDEMIC - THE CASE OF THE GERMAN BIONTECH

On 11th June 2020, EIB and the German BioNTech company signed an agreement for a VD operation of €100 million debt financing for the development of the COVID-19 vaccine in partnership with Pfizer. The German company, which already signed another VD agreement at European level in December 2019 for cancer research, also agreed to increase its own manufacturing capacity for a faster distribution of the vaccine at its own risk.

The loan is guaranteed by the European Commission and the EIB, which equally shared the guarantee. Resources, which are distributed in two equal instalments, come from the European Fund for Strategic Investments (EFSI) and from the InnovFin Corporate Research Equity fund, part of the Horizon 2020 program, and specifically from the Infection Diseases Finance Facility (IDFF), which already invested more than €500 million in the COVID-19 vaccine.

In December 2020, the COVID-19 vaccine developed by BioNTech and Pfizer was approved by the UK medicines regulatory authority and few days after the vaccine began to be administered in the country. Few weeks later, Canada, Mexico and USA also approved the vaccine, while the decision of the EU is expected by late December/early January,

Source: EIB interviews and Investment Plan for Europe: European Investment Bank to provide BioNTech with up to €100 million in debt financing for COVID-19 vaccine development and manufacturing (eib.org)

¹³ covid19-paneuropen-guarantee-fund-factsheet-en.pdf (eib.org) – accessed on 25/11/2020

¹⁴ EIB approves €51 billion for COVID-19 resilience, clean energy, rail transport and urban development – accessed on 25/11/2020

¹⁵ covid19-paneuropen-guarantee-fund-factsheet-en.pdf (eib.org)

IV. CONCLUSIONS AND POLICY RECOMMENDATIONS

Clearly the European Union has taken a major step with the European Green Deal that implies the EU will be carbon neutral by 2050, becoming the first major region in the world to declare this important target. The EIB will play a major role in helping the EU achieve this ambitious aim, by helping finance crucial investment, by helping catalyze additional finance, from the private sector, but also from other sources like national development banks for the green transformation in the EU and worldwide, and by providing its valuable in-house expertise to support this task.

It is important that the EIB has committed to align all its activities with the Paris Agreement, by the end of 2020, and to ensure that 50% of its activities will be in the green transformation by 2025, and to mobilize €1 trillion of investment by 2030 for this purpose. Outside the EU, the EIB is on track to fulfill the commitment made to increase its share of climate action financing in developing countries to 35% by 2020.

Important steps for the EIB to take these initiatives forward have been agreed unanimously by the EIB Board, in November 2020 in the Climate Roadmap; this Roadmap ensures, for example the use of the EU taxonomy to guide all EIB operations, as well as evaluating projects with a fairly high and rapidly increasing shadow price of carbon; at sectorial level, it has adopted a good policy on energy, with a strong commitment to renewables, and clear prohibition to finance expansion of fossil fuel capacity; furthermore, in the complex transport sector, it has agreed it will no longer support any further airport capacity expansion. It is also positive that all the EIB Group support for public transport would count towards the EIB green target. However, it could be argued that even stricter criteria could be introduced in the case of diesel buses and trains, to reduce carbon emissions.

As regards roads, the EIB Group will continue to support the development of the TEN-T road network in the EU, and strategic road corridors outside, where it considers there is a strong justification for doing so-like underdevelopment of the network, and where the projects meet an adapted economic test, including using shadow carbon prices. In the case of small roads, it is proposed to continue supporting investments within the context of regional development plans.

An important problem of this EIB approach is that it does not seem to sufficiently consider investing in alternative,

often much cleaner modes of transport, like railways run on electricity, especially before low carbon competitive versions of cars really materialize (even though the EIB is planning to commit significant resources to support electro-mobility and the use of hydrogen, as becomes competitive, for transport). However, there is an important degree of uncertainty in this latter expectation, and its success will be enhanced precisely if the EIB and other EU institutions dedicate important resources, (financial and other) to R&D, and supporting high-risk companies, that will use such frontier technologies.

Also less positive is that climate action and environmental sustainability investments have, thus far, not been tracked in the EIF, as they are in the EIB. Nevertheless, the SMEs and enterprises in EIF's portfolio contributed to the EU's drive for green transition for many years, e.g. by investing in energy efficiency. However, it seems urgent to establish directionality and tracking of climate action and environmental sustainability investments also in the EIF, even though it may be more difficult, as it acts only via intermediaries.

Thus, an important conclusion of our analysis is that the EIB has important achievements in improving the quality and directionality of the investment it funds towards a far greater focus on the low-carbon economy, but that it must do even far more to improve this directionality, given the scale and urgency of the challenge of mitigating and adapting to climate change. It must move even further from being just a project taker (responding to demand coming from the private sector) to also project maker. (Griffith-Jones et al, 2020), and thus help in creation of new markets and sectors, such as for example that of hydrogen, so promising especially if generated competitively from green energy.

It seems another clear conclusion is that the EIB Group needs not only to do better, but also **above all- needs to do more financing, given the scale of the investment required to achieve the ambitious targets required for achieving the Green Deal, and specifically for the recently adopted target of reduction of at least 55% of GHG emissions by 2030!**

Such an increase in scale can only be achieved by providing the EIB with higher resources, which would be channeled to help achieve its task of a green and just transition. Basically two routes are important and

complementary. **Firstly, it seems highly desirable that member states approve a significant increase of the paid-in capital of the EIB; in fact a doubling of the paid-in capital of the EIB would seem extremely important.** As in the case of the doubling of EIB capital in 2012 by member states, such a measure would lead to a much needed significant increase in the volume of transactions of the EIB itself, as well as having a major multiplier effect, via catalyzing additional private and other funds. Both would ensure supporting greater investment, crucial for the Green Deal and the COVID recovery.

Secondly, additional resources need to be provided by mechanisms like additional European Commission guarantees, that would allow the EIB Group, as well as national development banks, to support greater economic risk-taking, via thematic and quasi-equity instruments for example, without having to set aside high levels of EIB capital. In this sense the EU institutions could build on the positive lessons from the Juncker Plan or EFSI, which allowed an important increase in the absolute value and proportion within total activities of higher risk taking transactions by the EIB and EIF. Such higher economic risk-taking should, in this case, be only be taken in sectors, which reflect EU priorities in green and just transformation, as well as a recovery from COVID, with those characteristics.

Going beyond what the EIB Group should itself do, both in increasing the volume and directionality of its lending and other activities, it should also help, encourage and cajole others to pursue a similar path. It seems particularly important for the EIB to encourage and incentivize financial intermediaries with and through whom they work, to ensure they move as much and as quickly as possible with de-carbonization of their total portfolios.

About one third of EIB activities and 100% of EIF activities are carried out via financial intermediaries, so EIB and EIF have quite a large leverage over these institutions. It seems very important that both the EIB and EIF also apply environmental directionality and green criteria to the funding they channel via financial intermediaries; such a task would be easier to implement when these intermediaries are national development banks, but should also be introduced for commercial banks and other private actors. This could be done both by: a) having special lines of credit, equity or guarantees directed at certain or all sectors/activities linked to the green transformation

and/or b) putting green criteria to be fulfilled by all loans, equity and guarantees that the financial intermediary will grant, when using EIB/EIF resources. The latter may be more difficult to implement and monitor.

At an international level, the EIB group can exert similar positive green influence, starting with the counterparties with which they deal or finance. They can also work with international associations of development banks, like IDFC, which convened the recent first Summit on development banks, where great emphasis was placed on channeling resources of development banks world wide, as well as accompanying private flows, to the green transformation. (see for example, Griffith-Jones et al, 2020b). The EU Taxonomy and the treatment of shadow carbon prices, pioneered by the EIB can play key roles also if adopted internationally, and the EIB can play a key role in promoting their use.

Last, but certainly not least, there is the issue of most appropriate instruments to be used by the EIB for the green and just transformation. Clearly loan and guarantee instruments have a continued important role to play. When these are directly granted by the EIB, there is more space for resources to be channeled towards priority activities, like those linked to the green transformation. Furthermore, there seems to be an increased need for equity and quasi-equity instruments to play a growing role. In COVID and post-COVID times, this is firstly linked to the need to avoid further increases in companies' leverage, which could become problematic for them and for their lenders, the commercial banks. Secondly, greater use of equity and equity-like instrument, together with use of more direct or first-tier instruments where feasible, will facilitate greater policy steer to channel resources to companies and sectors investing for the green and just transition, especially the most innovative ones. Last, but not least, equity and quasi-equity will help the EIB, as well as national development banks, to share not just risks with the private financial and non-financial corporate sector, but also profits, thus allowing them to share the upside; this will imply the possibility of future higher levels of capital and reserves, facilitating greater scale of resources for future innovation and investment in the green and just transformation.

It is very positive that the EIB has become a major player in the still relatively small EU venture debt market, thus helping develop it; this instrument does have the feature

IV. CONCLUSIONS AND POLICY RECOMMENDATIONS

of capturing the upside, as part of the debt can be converted into an equity kicker. It has been successfully used by the EIB for innovative companies, including to provide a loan, to BioNTech for producing the vaccine against COVID, that was the first approved one internationally, thus funding the production of a highly important international public good.

Because instruments like venture debt and other equity like instruments require higher provisioning of capital, the need of their greater use seems to be another good reason for an increase of EIB capital and/or additional EU guarantees or other resources.

Finally, as the need for greater equity on a significant scale may not be most appropriately achieved directly through the EIB/EIF, there seems to be a strong case for the creation of a European Equity Fund (EEF), along lines suggested for example by Boot et al, op cit. It would be valuable if the European Commission pledged some current and future allocations from the EU budget towards its capital. Due to the advantage of leverage, it would have a multiplier effect. This source of equity funds could be augmented by voluntary (additional) contributions from some member states.

In addition to its paid-in equity capital, the EEF could also issue its own bonds and be opened for risk-bearing equity contributions by private investors, -e.g. institutional investors. Today these institutional investors have no or limited direct, equity-based access to Europe's SME market and its returns. Furthermore, the EEF could co-finance its activities with private capital funds, to expand its leverage. A well-established European agency would need to be entrusted with setting up, and eventually managing, the EEF, which would not be part of the agency's balance sheet. The most likely candidate for filling this role seems to be the European Investment Bank (EIB) or possibly better the EIF, given their expertise and extensive track record.

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The EIB Group needs not only to do better, but also-above all- needs to do more financing, given the scale of the investment required to achieve the ambitious targets required for achieving the Green Deal, and specifically for the recently adopted target of reduction of at least 55% of GHG emissions by 2030!

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THE ROLE OF THE EUROPEAN INVESTMENT BANK IN THE GREEN TRANSFORMATION

The European Investment Bank (EIB) is an integral part of the EGD, with the role of funding agency and advisor, with programs structured around the key area of focus of the European Green Deal (EGD) and with a Climate Action Plan implying the EIB will be making 50% of their lending to climate change related activities by 2025.

This policy study examines the context of the major green transformation that needs to take place and the challenge of implementation that this entails. The central idea is that instruments must be deployed in ways that maximize their development impact. Thus, the European Investment Bank (EIB), like all public development banks has a double mandate. Its main aim should be to maximize sustainable and inclusive development impacts (including economic, environmental and social impacts), while maintaining some financial profits or avoiding financial losses (see Griffith-Jones et al, 2020).

It firstly considers the context in which the EIB needs to operate, including what needs to take place in the framework of the European Green Deal and aligning to

the Paris target with reference also to the major additional challenges posed by the COVID-19 crisis and the financing of companies, especially SMEs. It also outlines the new roles and resources, which the EIB has been given to meet these challenges, and the central role the bank should play in the green transition. In addition, the policy study focuses on some of the main instruments the EIB does use and can use to help achieve the aims posed by the above challenges. Special emphasis is placed on the role that equity and quasi-equity instruments (such as venture debt) do and can play. This draws on the literature and previous research the author has done, together with in-depth interviews carried out with senior officials at the EIB and elsewhere, as well as with think tank experts.

This policy study builds on previous research carried out by one of the authors in a FEPS project, (Griffith-Jones and Naqvi 2021), which described the history, scale and role of the EIB/EIF (European Investment Fund), part of the EIB Group which is, by far, the largest multilateral bank in the world.

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