

ECONOMICS – THEMATIC STUDIES

Measuring the EIB Group's impacts

Methods and studies



European
Investment
Bank

The EIB bank 

Measuring the EIB Group's impact

Methods and studies

October 2021

Measuring the EIB Group's impact: Methods and studies

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About the EIB Economics Department

The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and in the definition of its positioning, strategy and policy. The department, a team of 45 economists, is headed by Director Debora Revoltella.

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The views expressed in this document are those of the authors and do not necessarily reflect the position of the EIB or its shareholders.

For further information on the EIB's activities, please consult our website, www.eib.org. You can also contact our InfoDesk, info@eib.org.

Published by the European Investment Bank.

Printed on FSC® Paper.

pdf: QH-06-21-096-EN-N ISBN 978-92-861-5081-4 DOI 10.2867/529767

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Foreword

At the European Investment Bank Group (EIB Group), we invest in projects and operations that make a real difference to people's lives, as well as protecting the environment and tackling climate change¹. Innovation and health, infrastructure, climate change mitigation and adaptation, cohesion and access to finance are at the heart of our activities. Impact drives everything we do. Our shareholders — the Member States of the European Union — ask us to support investments that are not just financially sound, but also transform the lives of people across Europe and around the globe. They also ask us to do so in a way that market forces alone would not be able to achieve.

Measuring impact is therefore essential. We assess potential EIB Group projects and operations not only in terms of financial risks and returns, but also against the positive or negative impact that each one could have. As part of our appraisal process, we systematically verify whether potential projects could have negative consequences for the environment, human rights and other aspects of social well-being. We estimate the positive economic, social and environmental results that each project is likely to achieve. And we check that our initial expectations are right.

We measure impact to improve our effectiveness. Our experts — who play an invaluable role in ensuring that projects are well-designed and properly implemented — monitor project results and ensure that the lessons learned feed into future advice and planning.

Measuring impact is a matter of accountability. We need to show all our stakeholders, our partners and the public we ultimately work for that the trust placed in us is well deserved and that the impact achieved through our work would not have been possible without our intervention.

Measuring impact is not a straightforward task. We work closely with our partner institutions, the impact assessment community and European institutions to keep abreast of the latest best practice in impact measurement, and to be at the forefront of efforts to measure impact better.

When we speak about impact measurement, we work along three dimensions, combining a macroeconomic view, project-by-project assessments and a sectorial-micro view.

Macroeconomic modelling tells us about the effect that EIB Group intervention has at the global level. To give one example, in 2015 we were called upon to implement the European Fund for Strategic Investment (EFSI), using a guarantee from the European Commission to

¹ The EIB Group finances investment projects in a narrow sense (such as infrastructure projects) as well as financial sector operations (such as credit lines or participation in venture capital funds to support access to finance for small and medium-sized enterprises (SMEs)). In this report, "projects" is used in a broader sense to encompass financial sector operations.

mobilise at least EUR 500 billion in additional investment across the European Union. The goal was to get Europe out of the investment slump it had lingered in since the global financial crisis. We were asked not just to look at the direct results of each project, but also the indirect impact across the economy on growth and jobs. So we teamed up with the Joint Research Centre of the Commission to develop a special version of their RHOMOLO macroeconomic model to assess the impact of EFSI, and indeed of all EIB Group operations. Our economists found that the investment backed by EFSI will increase gross domestic product (GDP) in the European Union by 1.9% and add 1.8 million jobs by 2022, compared to the baseline scenario.

For every project and financial sector operation, we measure our economic, social and environmental impact, as well as rigorously tracking its results. This process forms the backbone of our project assessment, while also making it possible to prioritise activities and provide proper incentive systems for our employees. For example, the projects we supported in 2020 will generate enough green and sustainable electricity for 8.6 million households and provide safer drinking water for 29.6 million people.

Finally, in-depth studies look in much greater detail at what selected projects and product types achieve and show us what does and does not work, teaching us important lessons that help us improve. For example, EIB and EIF researchers used econometric analysis to quantify how our intermediated lending and guarantees make a difference to investment and job creation at the beneficiary small and medium-sized enterprises (SMEs). The EIB Group Evaluation function investigated the EIB's contribution to catalysing the global green bond market, making recommendations for our future role as this market becomes ever more significant.

Impact is something we look at throughout the entire Group, from the sector experts in our Projects Directorate to our Evaluation function and our economic research teams at the EIB and the EIF. The sum of all these parts is greater than the whole, as we combine all of our resources and expertise to gain the fullest possible picture of our impact.

Looking ahead, we believe impact measurement will only grow in importance. Impact measurement is crucial for all public sector institutions, not only in terms of accountability to stakeholders, but also as an instrument for learning and improving. As more and more public sector resources are made available, the focus on impact measurement is likely to be even greater in the next couple of years, both in the European Union and beyond its borders. At the EIB Group, we have the experience and expertise. We are committed to delivering impact, and we are eager to use impact measurement not only for our accountability, but also for our own learning.

[Signed]

Werner Hoyer

President,
European Investment Bank

1. Introduction

How we assess impact at the EIB Group

As the bank of the European Union, the EIB Group (consisting of the European Investment Bank and the European Investment Fund) is there to improve lives, protect the environment and address climate change. We care deeply about impact because we need to know what difference our support makes.

Assessing our impact has three main purposes:

- **Focus on the most effective interventions.** We need information on the expected impact to assess how a project fits in with public policy goals and the mandates that our shareholders, the Member States of the European Union, have set for us. The expected contribution to these policy goals and mandates has to be considered alongside information on whether the project design is technically sound, what financial and non-financial risks are present, and how much of a difference EIB Group intervention will make in each particular case.
- **Learn from what works and what does not.** We must learn about the needs of our clients and beneficiaries to improve and fine-tune the type of support we provide. We must assess our results and impact to understand what is and is not working so we can get better at what we do by improving our policies, products and procedures.
- **To be accountable to our stakeholders.** As a public institution, we need to show what we achieve — how we improve peoples' lives, protect the environment and address climate change. As the EU bank, we are accountable to our shareholders — the EU Member States — as well as to EU institutions, EU citizens and the people affected by our projects, in Europe and around the world. Accountability depends on transparency. We need to make sure that we understand our impact fully, and communicate on what we find and how we act on these findings.

This report provides an overview of the methods we use at the EIB Group to track and understand our impact. It shows the interrelationship between the different instruments we have at our disposal.

- It describes how we meticulously incorporate the assessment of results and impact into the Bank's systems to provide our own decision-makers and stakeholders with consistent and reliable information on what our projects achieve, and to make sure that our operations achieve the greatest impact.
- It shows how we estimate the macroeconomic impact of EIB Group activities.
- It demonstrates how we complement systematic results assessment with targeted economic studies to gain deeper insights into how our projects ultimately impact people's lives.

This report looks at each of these different methods in turn. Note that each method may be employed in a complementary way by different parts of the Group to perform a range of functions. For example, the operational teams assess and track results through the transaction cycle and after project completion. The Evaluation function also uses analyses of results, including results after project completion, as part of its evaluations. In-depth research methods to assess impact and macroeconomic modelling are mostly employed by the Evaluation function and the EIB and EIF's internal research departments.

What is impact?

EIB Group activities have far-reaching effects. They contribute to economic growth and to the mitigation of global temperature increases, to development, poverty reduction and improved well-being. At a local level, the impact of projects may include the health benefits from reduced pollution or improved water treatment systems. However, the contribution of individual projects to such effects is very hard to measure. How can we gauge the contribution of a single project to national economic growth or the rate of global temperature change? How can we assess how much a transport or water sector project contributes to improvements in local health and quality of life? How do we assess our impact?

Our technical assessment of project feasibility is always accompanied by an assessment of impact. Impact assessment always starts with the inputs to a project and its direct, measurable results. According to agreed international standards for project monitoring and evaluation², we distinguish between inputs, outputs, outcomes and impacts. Each represents a link in the chain of causality, from the intervention of an institution like the EIB Group, to its most far-reaching effects, as described in Figure 1. The term “impact” is sometimes used as an umbrella term to cover the whole chain of results. The reason we pay so much attention to inputs, outputs and outcomes is because we want to assess and understand how our interventions ultimately impact the lives of people across the European Union and around the world.

Figure 1. The results chain

	Definition	Example
Impact ↑	How people are ultimately affected by the project	Fast internet helps job creation and social inclusion
Outcomes ↑	The direct result of project outputs	More households and businesses use fast internet
Outputs ↑	The direct result of project activity	Installation of a super-fast broadband network
Inputs	The nature of the support provided to a project	The EIB provides finance or technical advice to a telecoms project

Tracking project outputs and outcomes

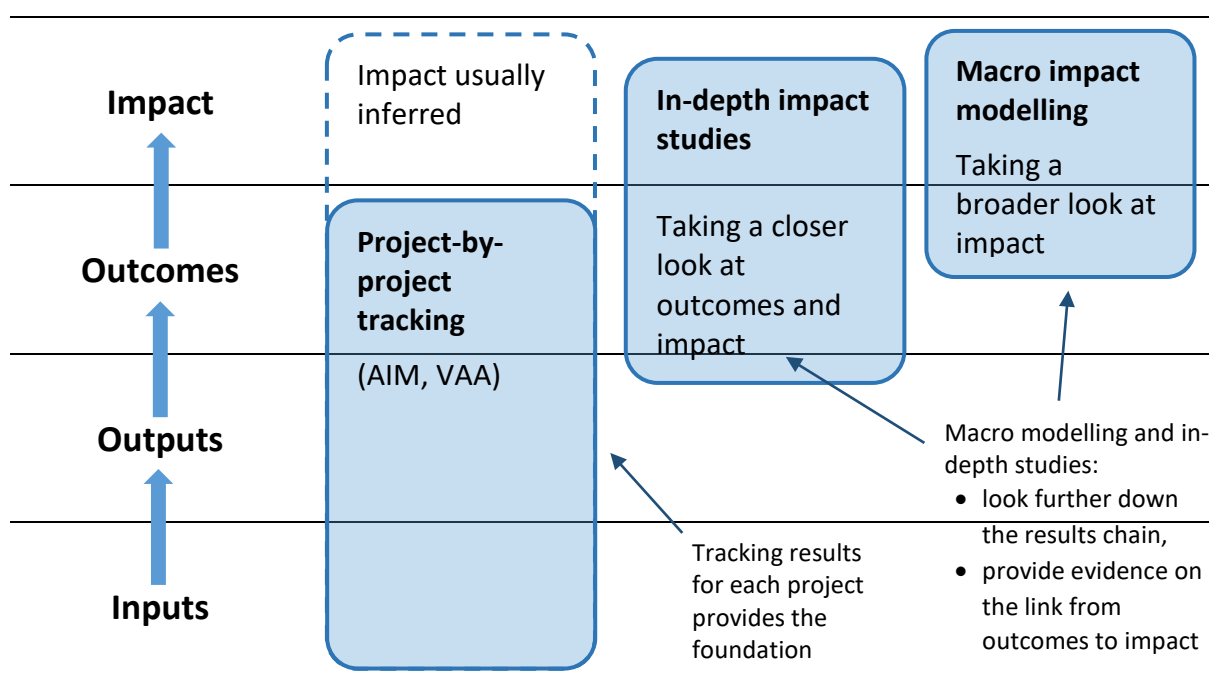
The EIB Group’s systems have been designed to enable us to record and assess expected results for every project or financial operation at the beginning of the cycle, and to track progress through implementation. After a project is completed, the systems allow us to re-assess or evaluate what results have actually been achieved, and to feed the lessons learned back into the design and appraisal of new operations.

² For agreed definitions, see the OECD Glossary of Key terms: <https://www.oecd.org/dac/evaluation/2754804.pdf>, and the Evaluation Cooperation’s Groups definitions: <https://www.ecgnet.org/document/ecg-big-book-good-practice-standards>.

The EIB uses its **Additionality and Impact Measurement (AIM) Framework** to track and assess inputs, outputs and outcomes through the cycle. The EIF uses its **Value-Added Assessment (VAA) Framework** for assessing the contribution made by different types of financial sector operations.

Such project-by-project assessments have a strong focus on outputs (for example, the building of track and stations for a new metro line) and can go some way towards assessing outcomes (such as how many people use the metro). However, the next step up the results chain — impact (reduced congestion or economic growth, for instance) — is hard to directly measure at the project level. Instead, the ultimate impact of a project or financial sector operation is usually inferred from the expected outcomes, based on a theory of change (Figure 2).

Figure 2. Different impact assessment tools and the results chain



In-depth impact studies: Taking a closer look at outcomes and impact

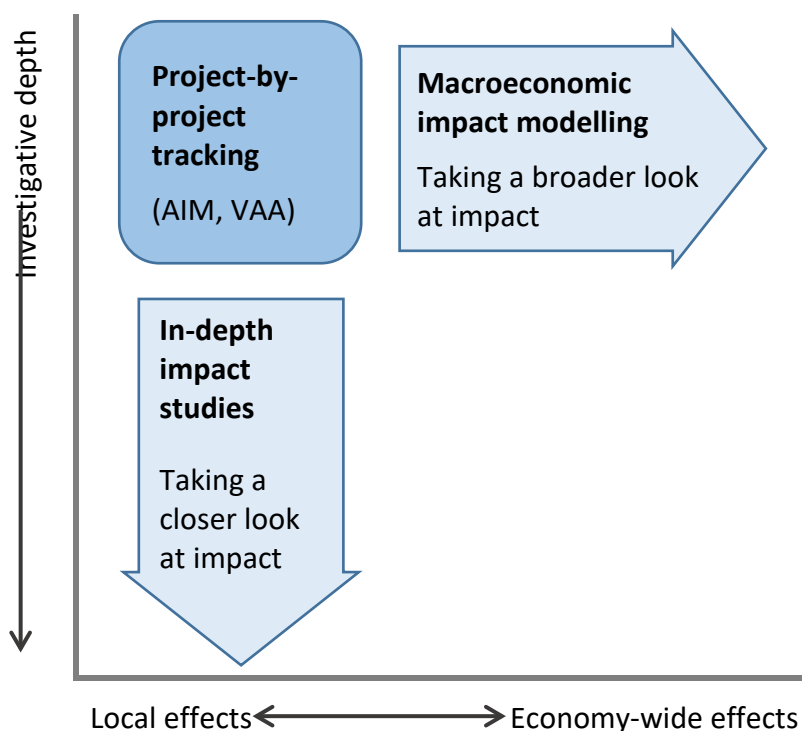
While systems such as the AIM or the VAA form the bedrock of the EIB Group’s overall approach to assessing results, they can only report on some of the indirect effects of the project. To gain a fuller picture, we also carry out more detailed analyses to check our inferences about how outputs and outcomes lead to impact, and to refine and supplement the evidence base that informs our selection of operations.

In-depth impact studies are one way of looking much closer at what our projects achieve (Figure 3). In these studies, we go beyond what is feasible in a regular results assessment, using a variety of methods to dig deeper into the impact of particular projects or types of product offered by the Group. Although we cannot perform an in-depth investigation for every project, these studies are vital for ensuring that we have a clear understanding of the impact ultimately achieved by our project activities overall.

Macroeconomic impact modelling: Taking a broader look at impact

Modelling the economy-wide impact of our operations is another way in which we build on our project-by-project results assessment (Figure 3). The investments we support may have ramifications throughout the economy. Over the long term, productivity, competitiveness and therefore prosperity are impacted. Through economic modelling, we can gauge how big these effects are likely to be. This modelling helps us to make sure, once again, that we have fully understood how individual projects and their immediate results will ultimately impact people’s lives.

Figure 3. Taking a further look at impact



Impact tools through the project cycle

We begin with an assessment of planned and expected project activities, outputs, outcomes and — as far as possible — impact. We use this assessment to strengthen the appraisal process by indicating how projects are expected to contribute to mandate and policy objectives, as well as other aims such as the Sustainable Development Goals (SDGs).

Once projects reach completion, we review them again to assess the results achieved. The lessons we learn help us improve our activities and future project appraisals. We also monitor projects during their implementation to identify any difficulties and determine how the Bank can help resolve them.

In-depth impact studies mostly take place during or after implementation to investigate the results and impact achieved. In some cases, however, they may be initiated at the start of the cycle to establish a baseline for future comparison. They are carried out or commissioned by the Group’s researchers or the Evaluation function, often in collaboration with partner research institutions and leading academics. Macroeconomic modelling is used to estimate

the past and future economic impact of recent and ongoing EIB Group support for investment (Figure 4).

Independent ex-post evaluations of EIB Group activities form an essential part of our efforts to constantly improve performance. These assessments are carried out after project completion by the Evaluation function with two aims:

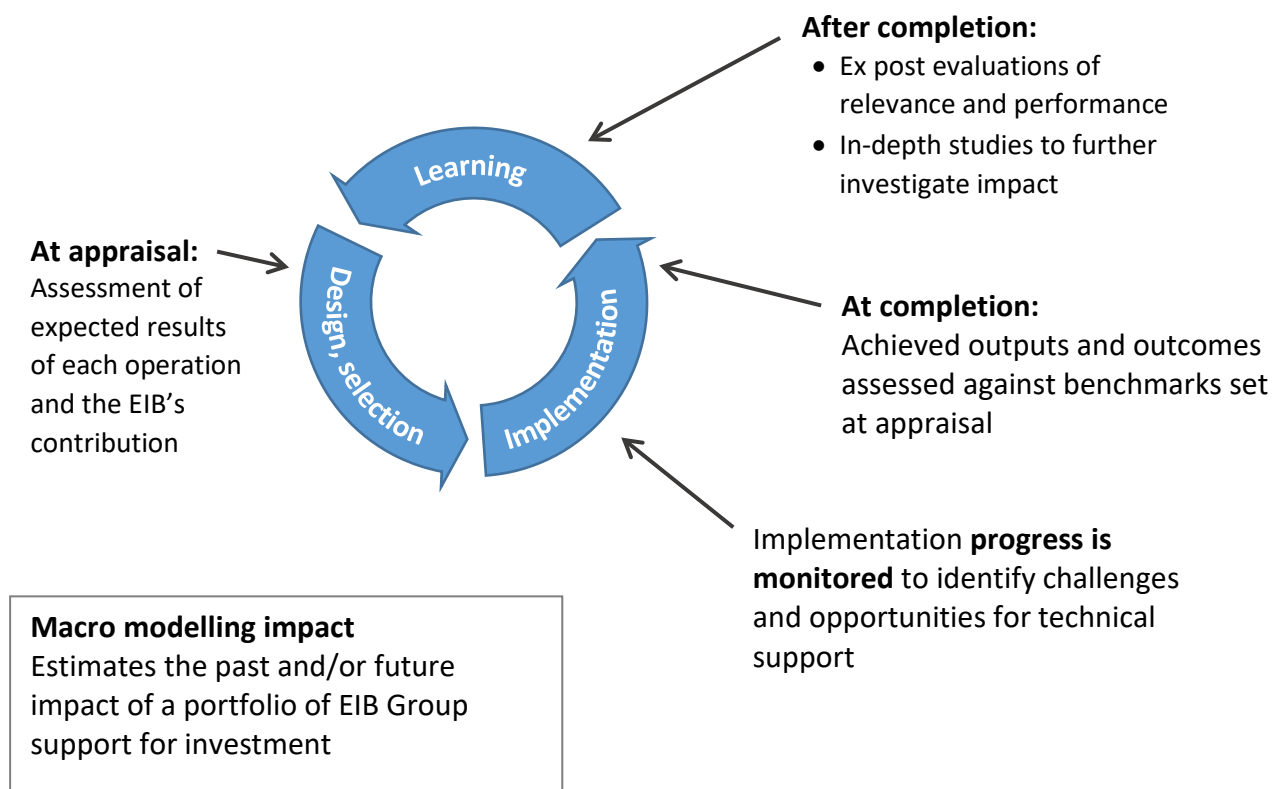
- **Accountability:** to assess whether our activities have been in line with our policy mandates and corresponding strategies, and if these activities have delivered as expected.
- **Learning lessons:** to provide evidence on what works well to support Group-wide decision-making and improve performance.

Independent evaluations assess the relevance and performance of the EIB Group's activities, while taking into account the nature of its business model. They identify which factors enable or impede project implementation and the achievement of objectives. Their findings highlight lessons learned and provide strategic guidance.

The EIB Group's Evaluation function typically examines a number of operations linked by a common theme, such as a certain sector, mandate or type of financial instrument. It generally look backs over operations taking place in the last five to ten years. The geographical scope is usually a region rather than a single country. That said, evaluations can also be on a smaller scale, and use more in-depth methods.

The evaluation process at the EIB Group follows internationally accepted standards. In accordance with the criteria defined by the OECD Evaluation Network and adopted by the Evaluation Cooperation Group, evaluations look at relevance, effectiveness, efficiency and sustainability. At the EIB Group, the management of the project cycle is also examined.

Figure 4. Impact tools through the project cycle



2. Tracking results, project-by-project

Results assessment lays the foundation of all of our work on the impact of EIB Group activities. We assess results for every project (including financial sector operations) and do so throughout the project cycle.

Because a results assessment is carried out for every project, it can cover project activities, direct outputs such as installed wind turbines or loans given to SMEs, and outcomes such as electricity generated or jobs supported in beneficiary companies. The assessment provides an invaluable basis for gauging our projects' ultimate impact, which is often felt across multiple sectors and seen in a range of local effects, such as growth, poverty reduction and employment creation. These effects are often hard or even impossible to measure and quantify at the project level. Nevertheless, our systematic results assessment allows us to delineate the likely effects based on the links we can observe or estimate through more in-depth impact studies or broader impact modelling.

Results assessment is performed within different frameworks at the EIB Group. At the EIB, projects are appraised and monitored using the AIM Framework³. A similar framework is applied to technical assistance operations. The EIF uses its own frameworks for assessing the contribution made by different types of financial sector operations.

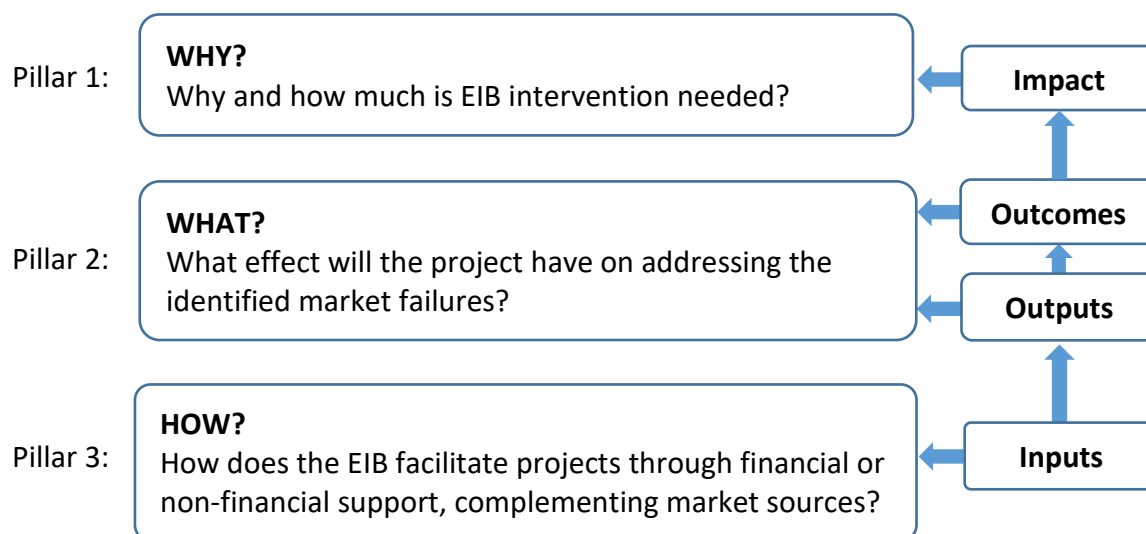
The EIB's Additionality and Impact Measurement Framework

AIM provides a comprehensive basis for measuring results and assessing each EIB project in terms of both its impact and additionality, in line with international best practices. The framework follows an established three-pillar logic that asks WHY an intervention by the EIB is needed, WHAT will be achieved, and HOW the EIB will make a difference⁴. These three pillars are linked to the different elements of the results chain (Figure 5).

³ The AIM entered into operation at the beginning of 2021. It harmonises and supersedes the 3 Pillar Assessment framework previously used for operations inside the European Union, and the Results Measurement (ReM) Framework, previously used for operations beyond the European Union, while maintaining the flexibility needed to span these different contexts.

⁴ For example as part of the MfDR Glossary (http://www.mfdr.org/About/MfDR_Glossary.pdf).

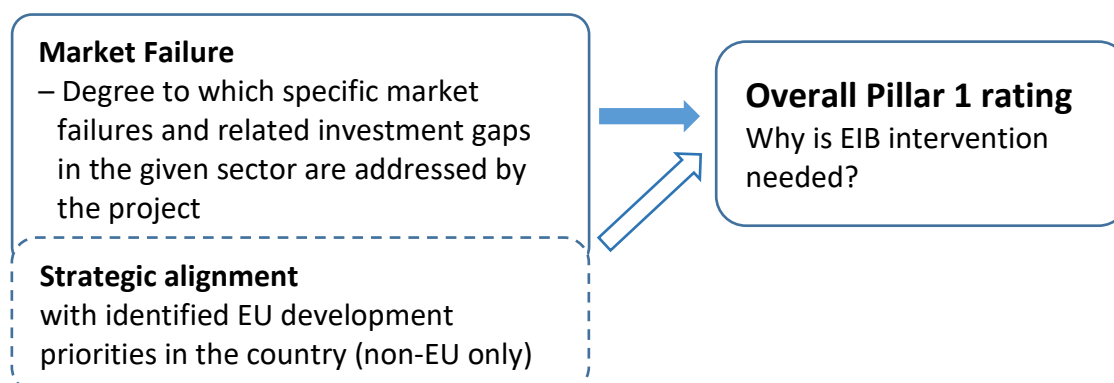
Figure 5. AIM Framework and the results chain



Pillar 1 assesses the investment need by determining the extent to which EIB operations target sub-optimal investment situations and investment gaps resulting from market failures. It also assesses operations beyond the European Union against the required development impact, as identified in European Union country dialogue and country programming. Pillar 1 shows why the EIB’s intervention is needed (Figure 6).

The framework includes an ex ante analysis of key market failures in each eligible sector. This analysis is periodically reviewed and, if necessary, updated. The degree to which each project will target the most significant market failures or sub-optimal investment situations in its sector can then be assessed and rated. For operations beyond the European Union where market failures can be more severe, the framework tries to prioritise each country’s specific needs, as identified in the country diagnostic and the country’s dialogue with the European Commission. This information helps the Bank’s governing bodies steer the business towards operations with higher impact and additionality.

Figure 6. AIM Pillar 1 rating components



Pillar 2 assesses the effect of each project on the investment need identified under Pillar 1. The assessment is based on the outputs and outcomes of the operation, the standards followed, the risks involved and any risk-mitigating measures taken (Figure 7).

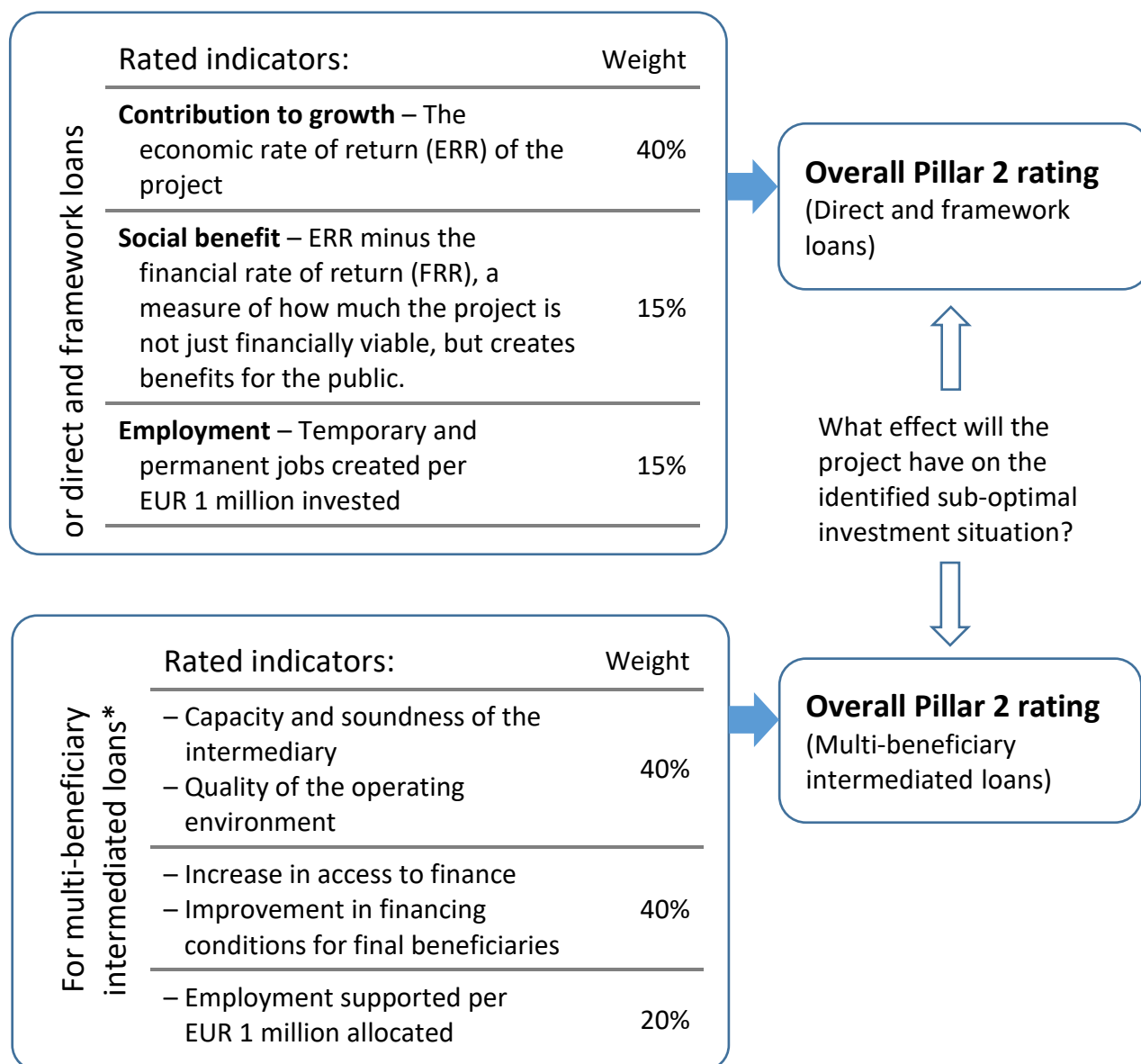
For direct investment and framework loans (mostly for infrastructure projects), the overall Pillar 2 rating is a weighted average of four main components:

- **Economic rate of return (ERR)** — A measure of the average annual return on invested capital to society as a whole over the project’s entire life cycle, including positive and negative direct effects on public welfare.
- **Social benefit** — Calculated as the difference between the expected ERR and the expected financial rate of return (the FRR, which measures the average annual return to the financial stakeholders in the project). The social benefit reflects the distribution of net benefits between the project’s financiers and the rest of society. A project will have a high social benefit when the ERR is significantly higher than the FRR. A high social benefit implies that the capital invested in the project creates economic and social benefits substantially in excess of the revenues it generates for the financial investors. Such projects improve social welfare by lessening market failures. In contrast, a project where the FRR is higher than the ERR has negative social benefits, even though it might be financially viable. Such a project would not be acceptable for EIB financing.
- **Employment generated** — Based on the temporary employment, in person-years, generated during the project construction, and the number of permanent jobs created by the operation of the completed infrastructure, per million of euros invested.
- **Environmental, social and governance impact** — The likely positive or negative environmental, social and governance impact resulting from project implementation and the completed infrastructure is assessed and rated for each project. Planned measures to mitigate negative effects are also taken into account in the rating. The three sub-components — environmental, social and governance — are weighted equally.

For multi-beneficiary intermediated loans (that provide indirect finance for SMEs and mid-cap companies), different rating criteria are used:

- **Capacity and soundness of the intermediary and quality of the operating environment** — Reflects the risks to results posed by the intermediary’s capacity to deliver on-lending, the intermediary’s financial soundness and governance, and the economic situation in the country and the banking sector.
- **Increasing access to finance and improving financing conditions for final beneficiaries** — Captures the expected results that the operation will deliver. The focus is on the advantages passed onto the final beneficiaries (for instance, SMEs and mid-caps) and the potential effects on the market. The indicators are the transfer of financial advantages to the final beneficiaries, loan tenors and the scale of finance made available to SMEs as a multiple of EIB lending, along with other services offered to them by the intermediary. Market effects are also considered, such as whether the project increases competition, helps diversify funding sources, or helps to introduce new products.
- **Employment sustained** at the final beneficiaries per million of euros allocated.

Figure 7. AIM Pillar 2 rating components



* Other financial sector operations such as support for private equity funds, microfinance institutions and equity to banks use a similar but slightly adapted approach to that used for multi-beneficiary intermediated loans.

Pillar 3 evaluates how the EIB facilitates or strengthens a project by providing financial or non-financial support, which complements what is available from market sources (Figure 8)⁵. The EIB’s contribution is needed because of identified market failures and without it, the project would not have gone ahead, or would have been reduced in terms of scale and scope. The types of **financial contribution** assessed are:

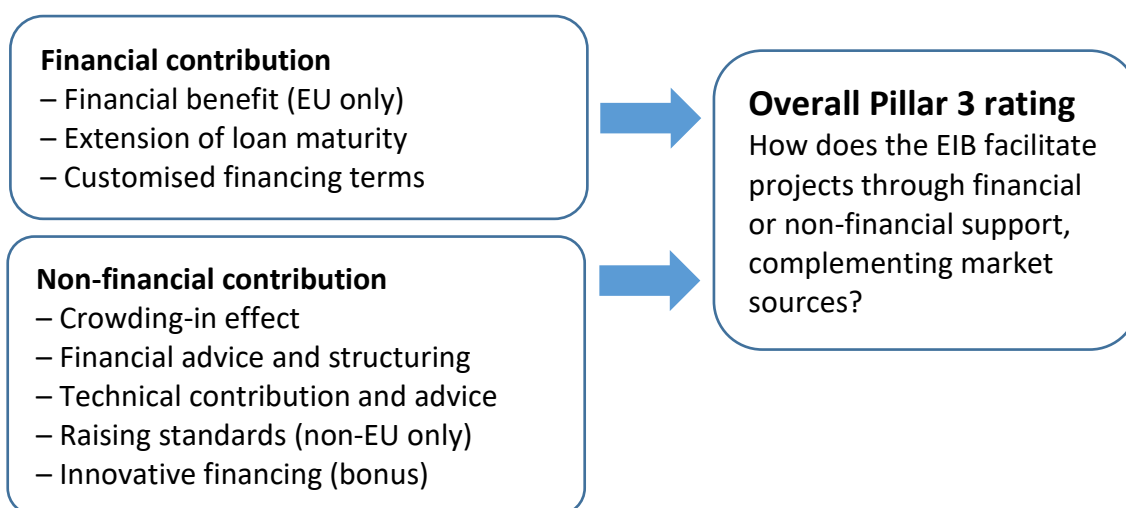
⁵ This is aligned also with the Multilateral Development Banks' Harmonized Framework for Additionality in Private Sector Operations. <https://www.adb.org/sites/default/files/institutional-document/456886/mbd-additionality-private-sector.pdf>.

- **Financial benefit** — An assessment of financial value added or, where this is not possible, benefits in terms of capital relief.
- **Extension of loan maturity** — The financing repayment period offered by the EIB in excess of what is otherwise available in the market.
- **Customised financing terms** — Additional benefits provided by the EIB’s financing structure beyond the price advantage and longer maturity.

The assessment of the **non-financial contribution** covers:

- **Crowding-in effect** — The extent to which the EIB’s involvement has a catalytic role in mobilising other financiers, whether by crowding in private sector financiers or via the terms of its involvement with public sector partners.
- **Financial advice and structuring** — The extent to which a product is considered innovative in terms of financial advice and structuring in a specific market and/or for the counterparty.
- **Technical contribution and advice** — The technical contribution made by the EIB including the upstream involvement of advisory services, the involvement of external technical assistance financed and/or supervised by the EIB, and the contribution of EIB experts to improving a project during its preparation or implementation.
- **Raising standards** — The extent to which projects beyond the European Union contribute to the dissemination of EU standards in areas such as procurement, technical standards and environmental, social and governance standards.
- **Innovative financing** — A bonus indicator used when appropriate to capture how the financing is considered innovative in ways other than financial advice and structuring.

Figure 8. AIM Pillar 3 rating components

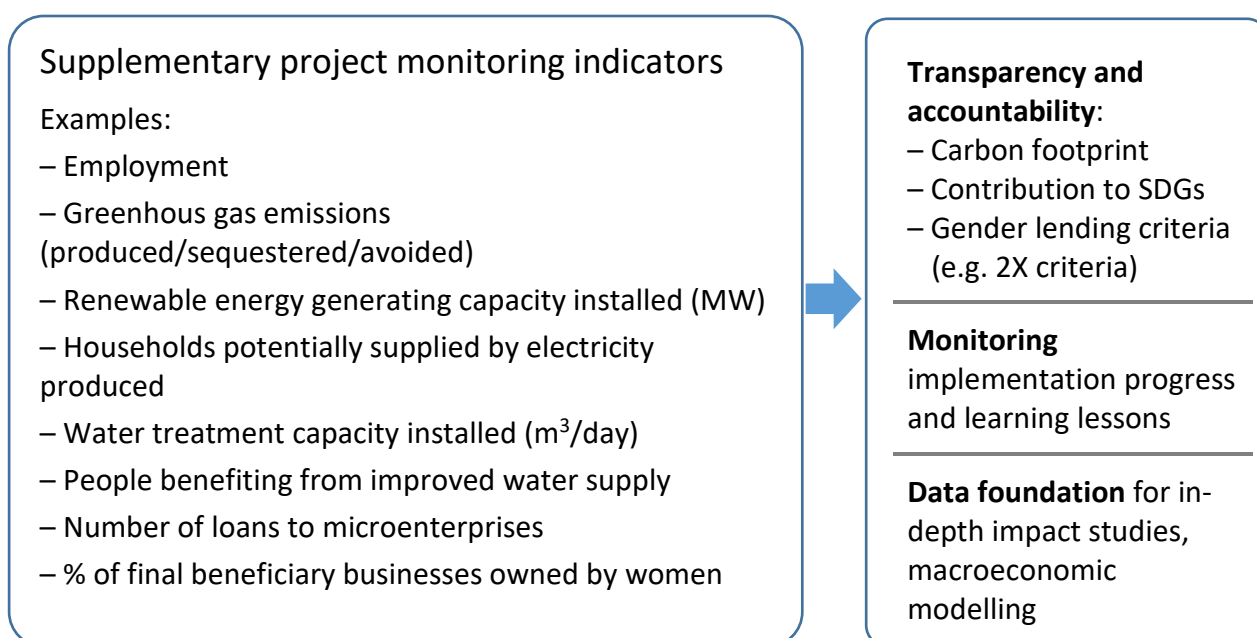


The three pillars of the AIM assess the results and the additionality of the operations through a refined rating methodology. The ratings are **supplemented by extra indicators for monitoring results**. These indicators are identified for each project at appraisal (Figure 9). They include sector-specific output and outcome indicators that measure the specific results of the projects, such as the capacity of a water treatment plant, or the number of people

benefiting from improved water supply. Where possible, project-monitoring indicators are broken down by sex or include specific gender-focused indicators.

Project-monitoring indicators thus provide more context-specific information for every operation and serve a number of important purposes. First of all, they facilitate the monitoring and evaluation of projects during and after implementation to detect when corrective actions may be needed and to identify lessons that can help improve future projects. By quantifying specific project outputs and outcomes, the indicators provide data that can feed into further studies so that project impact can be examined in greater depth. Finally, they also make it possible to estimate the contribution of EIB-supported projects to different objectives and criteria, facilitating transparency and accountability. These objectives and criteria include the assessment of the overall carbon footprint of the EIB portfolio, the Bank’s contribution to achieving the SDGs and the project’s compliance with specific criteria such as the 2X Challenge gender-focused lending criteria.

Figure 9. Supplementary project-monitoring indicators under the AIM



The AIM forms a key element of ensuring development effectiveness, in terms of managing results (steering, designing, implementing, reporting and learning). During appraisal, Pillar 1 helps to first answer the question of whether a project should be pursued. As part of the due diligence process, all three pillars are rated and results indicators captured to assess the value added by the operation. These ratings then form a key part of the deliberation process. The results indicators identified at appraisal are used to monitor the project throughout its cycle. When a project is appraised, the EIB estimates the results that will be achieved by the project, and these indicators are then tracked to see what is delivered at completion and, where relevant, post-completion. The EIB reports on the results that are expected and achieved. Monitoring results means that lessons can be identified and fed back into project implementation and, at portfolio level, used to influence future projects and processes.

The EIB’s results framework is geared to align with EU policy in the countries and regions where the Bank operates. It also focuses on attaining the SDGs. The framework is flexible so that additional indicators can be added when new needs emerge in the future.

EIF value added and social impact assessments

When appraising new operations, such as its participation in equity funds and its loan securitisation products for SMEs, the EIF assesses the value it adds. Value added is assessed on three levels:

- **Market level** — Does the investment respond to a market need and facilitate access to finance for final beneficiaries in particular sectors and geographies, in line with the EIF's objectives?
- **Transaction level/advice** — How does the EIF add value through advice on structuring investments and promoting good market practice?
- **Transaction level/catalytic effect** — How does the EIF investment help mobilise funds from other sources, assist fund managers in institutionalising and internationalising their investor base, and attract new investors to an investment space of policy interest to the EIF?

These different levels of value added are estimated at the initial closing of each transaction and then compared annually to the feedback received from fund managers or the relevant financial intermediaries. For securitisation products, the financial intermediary also commits to originating an additional portfolio of new loans or leases for SMEs based on a multiple of the EIF's participation in the transaction. The EIF collects information from financial intermediaries annually to assess compliance with the commitment made at closing. In this way, the Fund assesses its contribution to building up a healthy financial ecosystem for small and innovative business across Europe.

A good example of how the EIF tracks operational value added and results is provided by the Social Impact Accelerator (SIA). Managed by the EIF, the Accelerator invests in social impact funds, which, in turn, strategically target and provide equity finance to social enterprises. The EIF assesses the results of the investments in social enterprises to gauge the overall social impact achieved.

Social enterprises are SMEs whose business models provide entrepreneurial solutions to societal issues. To measure these results, the EIF has developed a framework for quantifying and reporting on results metrics at all levels of the investment chain. Prior to investment, social impact funds financed by the Accelerator are asked to define between one and five results indicators for every social enterprise in their portfolios. They are then asked to set quantifiable targets for each of the indicators, and to report on them at least once a year. The EIF and its co-investors in a social impact fund can therefore monitor the progress made by investee social enterprises towards achieving their social impact objectives.

Under the Social Impact Accelerator, the fund manager is held accountable for the social performance of investee companies. This performance affects their financial returns via the distribution of carried interest by the EIF to the management team, which ensures their interests are aligned with the Accelerator's overall objectives.

Building on the experience gained through the Accelerator, the EIF is widening the scope of its results assessment framework beyond the social impact to include all purpose-driven funds, such as those focusing on climate and the environment, covering themes such as agriculture and food, energy, climate change mitigation technology, resource conservation and the circular economy. The extension of the EIF's results assessment methodology to these sectors and its wider adoption by the venture capital community is helping to set new standards for impact investment. A summary of an evaluation of the Social Impact Accelerator is given in this report.

Case study: Assessing the carbon footprint of EIB operations

Greenhouse gas emissions are a critically important impact that must be measured for EIB projects. Likewise, the volume of emissions that EIB-supported projects help to avoid — by providing an alternative to carbon-intensive energy sources and transport modes, for instance, or by achieving energy efficiency gains — is a key outcome specifically targeted by more and more projects supported by the EIB, as the EU climate bank. For this reason, the EIB carries out a rigorous assessment of the carbon footprint of its projects, both to feed into the project appraisal process under the AIM Framework, and to ensure accountability. We use a set of published methodologies, harmonised with those adopted by other international financial institutions, to determine the expected greenhouse gas emissions from an EIB-financed project⁶.

When reviewing the total impact of EIB lending, we believe it is important to assess significant emissions and removals from all the sectors we fund — not simply from green sectors. In measuring our annual carbon footprint, we include projects from the fields of conventional and renewable energy generation and networks, energy efficiency, transport, industry, water and solid waste, agriculture and forestry. Including these areas allows us to assess the contribution from all types of lending.

We estimate and report the greenhouse gas emissions of projects whose emissions are expected to be significant and exceed one or both of the following thresholds:

- Absolute emissions (actual emissions from the project) greater than 20 000 tonnes of CO₂ equivalent (CO₂e) per year for a standard year of the project's operations.
- Relative emissions (estimated increases or reductions in emissions compared to the expected alternative) greater than 20 000 tonnes of CO₂e per year.

An analysis of our carbon footprint suggests that approximately 95% of emissions generated by the EIB's investment projects are within these two thresholds. The absolute emissions from each project form the basis of our approach to our carbon footprint. Assessing and reporting the prospective changes in the level of emissions as a consequence of a project enables us to compare the project with other technologies or solutions.

For example, in 2020, 99 of the projects in the EIB portfolio had estimated emissions above the absolute or relative emissions thresholds and were included in the **2020 carbon footprint exercise**. They represent total EIB signatures or allocation approvals of EUR 14.4 billion. The related total absolute greenhouse gas emissions are estimated at 5.2 million tonnes of CO₂e per year, with carbon sequestration by forestry estimated at 0.3 million tonnes of CO₂e per year. The overall reduced or avoided emissions from the same financing are estimated at 3.7 million tonnes of CO₂e per year in accordance with the carbon footprint methodology⁷.

⁶ See: https://www.eib.org/attachments/strategies/eib_project_carbon_footprint_methodologies_en.pdf.

⁷ <https://www.eib.org/en/publications/sustainability-report-2020>.

Case study: Evaluating the Social Impact Accelerator

The European Investment Fund set up the Social Impact Accelerator in 2013 to provide equity and quasi-equity financing to social impact funds targeting social enterprises across Europe. The Accelerator is a EUR 243 million fund-of-funds, with 18 funds in total, and is based in nine European countries. Its investment period terminated in July 2019. The intervention logic of the Accelerator follows three pathways to delivering a greater positive social impact:

- Expanding funding to social enterprises, both directly and by crowding in additional investors, to allow social enterprises to scale up their activities and social impact.
- Encouraging fund managers to focus on social impact as well as financial results and by providing financial incentives (carried interest) for achieving predefined social impact targets. Better support from fund managers for social enterprises is expected to improve the financial and social performance of funds, and in turn help attract other investors.
- Providing advice on how to structure funds to improve their governance and investment practices and the monitoring of social impact, which again improves the credibility of social impact investing and attracts other investors.

A 2020 evaluation of the Accelerator used a range of methods including desk research, literature review and online surveys of all the SIA-backed funds and the social enterprises in which they invested⁸. Interviews were carried out with fund managers and a number of social impact investors, some of whom co-invested in the SIA-backed funds.

The evaluation found that:

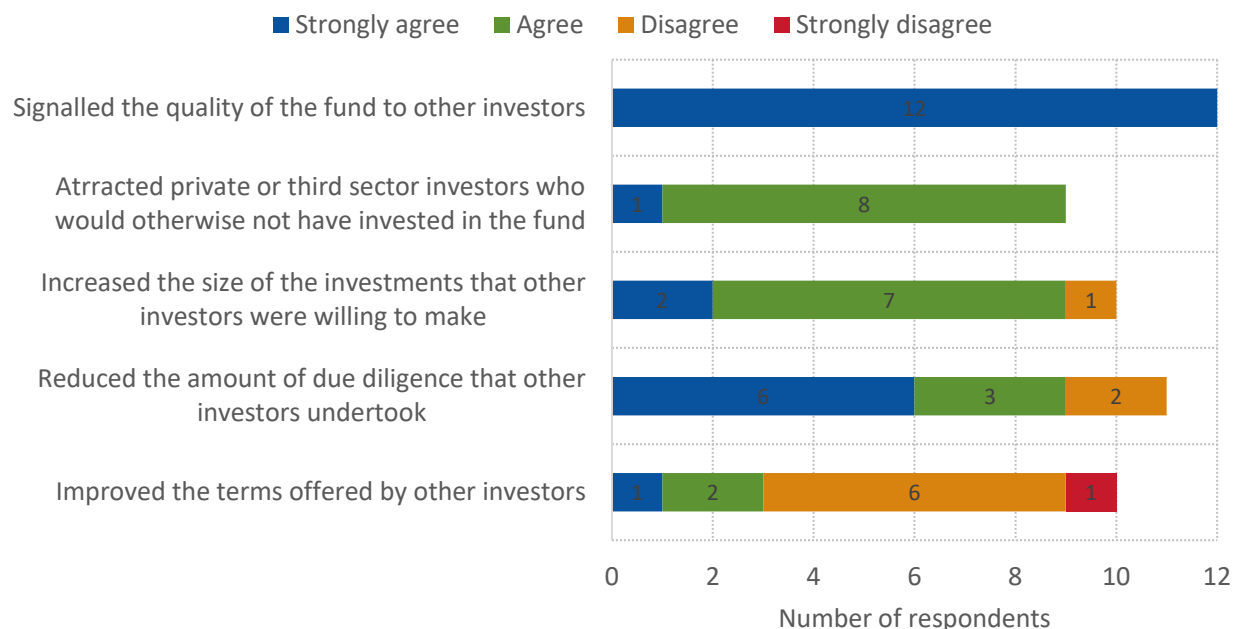
- The Accelerator continues to be highly relevant and the EIF puts considerable thought into selecting the funds that could make a solid contribution to the impact investment market in their respective countries. However, the EIF could do more to promote collaboration and knowledge-sharing among SIA-backed funds.
- In the absence of SIA investment, the funds would have been much smaller, with many failing to close or struggling to operate. All 12 fund managers interviewed during this evaluation (18 funds in total in the SIA portfolio) strongly agreed that the EIF investment signalled the quality of their fund, and nine said that it attracted private investors that would not have invested otherwise (Figure 10). There is no evidence of the Accelerator having a crowding-out effect.
- The Accelerator increased the availability of finance for social enterprises beyond initial expectations. At the end of 2018, the amount invested by the SIA-backed funds in social enterprises was approximately four times the amount invested by the Accelerator.
- Most of the SIA-backed social enterprises say they would not have been able to access finance from other sources under the same conditions and within the same period. They delivered entrepreneurial solutions for social issues such as providing home-care services and recycling services, dealing with online hate and mentoring young people and refugees. However, one fund which focused on creating growth and employment in deprived areas also invested in companies such as fast food restaurants, which might also have negative effects.
- The structuring advice from the EIF was appreciated and resulted in positive change in the supported funds. The social impact-linked financial incentives, meanwhile, did not significantly

⁸ https://www.eib.org/attachments/ev/ev_report_erep_slidedoc_sia_en.pdf

influence the magnitude of social impact, but did strengthen monitoring and enhance the credibility of fund managers (Figure 11).

Figure 10. The Social Impact Accelerator provided a positive signal to other investors

“To what extent do you agree/disagree with the following statements on the impact of the EIF?”

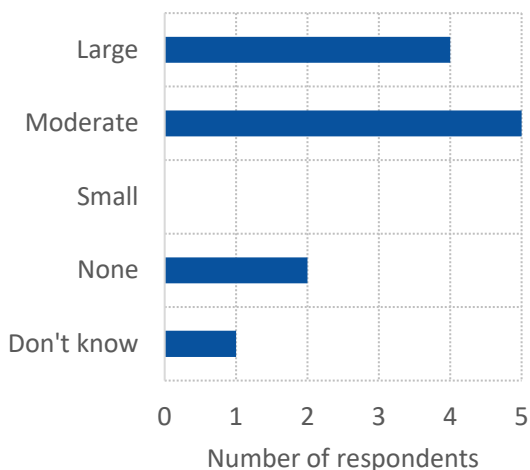


Source: Survey of SIA-backed fund managers

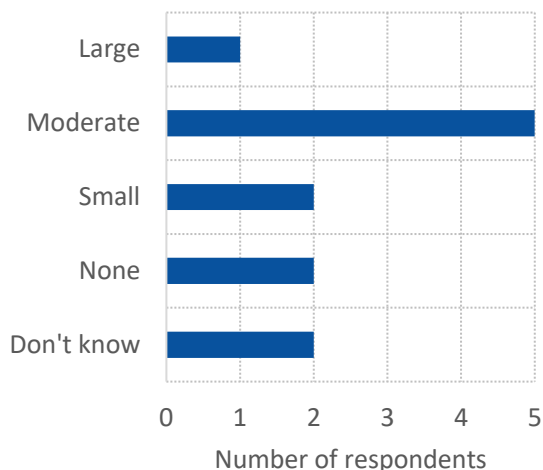
Figure 11. Effect of social impact financial incentives

“What impact (if any) did the social impact financial incentives used by the EIF have on the following aspects of the delivery of the fund?”

The quality of monitoring of investees’ social impact



The magnitude of investees’ social impact



Source: Survey of SIA-backed fund managers

3. In-depth impact studies

Digging deeper for more evidence on impact

Impact studies analyse selected projects in greater depth to gain a better understanding of their effects. They build on the data collected through the results assessment, but go a step further by allowing us to test and confirm, or revise, our interpretation of how project outputs and outcomes create further impact for people and the planet.

Impact studies can be conducted after projects have taken place, or during project implementation to observe changes as they happen. They provide important insights that help us improve future projects and how we appraise them. Impact studies go beyond the question of whether outcomes are as expected, and test the assumption and theories we use to interpret how projects make a difference in a range of contexts.

Methodological rigour is very important in impact assessment, and studies can draw on a range of approaches. Many such approaches attempt to examine causal links with a project's impact, although clearly establishing causality is not always possible or within the scope of every study. This section provides some examples of the different kinds of studies carried out within the EIB Group.

Some EIB Group studies use econometric analysis to gain a better, evidence-based understanding of how our activities contribute to impact. In some cases, these impact studies focus on a single project, or even just one element of a project. This approach is taken in the EIB Economics Department's collaboration with the Global Development Network. Their cooperation includes a programme that trained and supported young researchers from African and Caribbean countries in carrying out impact evaluations of selected projects in those regions (see Case study: *Assessing the impact of private sector projects in Africa*). The programme has proved to be an effective way of drawing on researchers' knowledge of local contexts and collecting primary data from final beneficiaries.

In other cases, the studies examine the impact of a group of projects, matching secondary data on the performance of firms with EIB operational data. The EIB Economics Department's researchers followed this approach to evaluate whether intermediated lending to SMEs in Europe has improved the performance of firms that received support, compared with those that didn't (see Case study: *Microeconomic impact assessment of the EIB's support for small businesses in the European Union*). Such methods had been previously applied by EIF researchers to evaluate the impact of support for SMEs via venture capital funds and credit guarantees (see Case study: *The economic impact of EIF venture capital and credit guarantee operations*).

For business angel, venture capital and private equity mid-market activities, the EIF also performs survey-based assessments of fund managers to supplement and substantiate the transaction-level analyses. These surveys are anonymous and focus on the EIF's catalytic role and quality signalling function. Survey results so far have shown that venture capital and private equity fund managers see the EIF's impact on the fundraising process very positively. They also suggest that the EIF has had a positive impact on fund structures, improving governance, procedures and investor protection clauses especially, and leading to the implementation of best-market-practice terms and conditions. So far, fund managers also

have a very positive perception of the EIF's role in reducing the financing gap in the market for companies, and helping funds overcome insufficient private sector involvement⁹.

Evaluations carried out by the EIB Group Evaluation function often dig deeper to investigate impact using a range of methodologies such as interviews, surveys and quantitative data analysis. One example is the evaluation of the Bank's influence on the growth of the green bond market (see Case study: *The EIB Group's impact on the development of the green bond market*).

Case study: Microeconomic impact assessment of the EIB's support for small businesses in the European Union

The EIB Group supports access to finance for SMEs, using commercial banks as intermediaries. The goal is to improve the performance of these businesses, particularly in terms of job creation and investments that improve productivity and competitiveness.

The EIB's multi-beneficiary intermediated loans to support SMEs can lead to such improvements in two different ways. Firstly, financial intermediaries pass on some of the advantageous funding terms they receive to borrowing firms in the form of lower financing costs or longer loan maturities. These advantages can contribute to better economic performance due to strengthened profitability for the SME beneficiaries, which in turn promotes investment and job creation.

Secondly, EIB-enabled funding might alleviate constraints on how much credit SMEs are able to access. Particularly in times of economic or financial downturns, a public line of credit, from the EIB for example, can expand the funding base of banks. Banks are then able to lend to firms presenting viable investment projects that would otherwise have been rejected, or only partially financed, due to a lack of funds.

To get to the bottom of how SMEs in the European Union have actually benefited from this type of intermediated lending, the EIB Economics Department has carried out a number of microeconomic impact assessment studies¹⁰. The studies used the data on final SME beneficiaries that the EIB requires from financial intermediaries to estimate the impact on employment and investment activity, relative to what would have happened without EIB support. Our researchers used state-of-the-art, quasi-experimental methodologies to replicate randomised controlled trials. Each beneficiary SME was paired with a company that received no such support, but had otherwise similar financial and non-financial records in the same period. Then the performance of the beneficiaries relative to the sample of non-beneficiary firms was evaluated. Based on a few reasonable assumptions, the methodology

⁹ For detailed results see: Kraemer-Eis, H., Botsari, A., Gvetadze, S. and Lang, F. (2018). EIF VC Survey 2018. *Fund managers' perception of EIF's value added*. EIF Working Paper 2018/51.

https://www.eif.org/news_centre/publications/eif-wp-51.pdf

and Kraemer-Eis, H., Botsari, A., Brault, J. and Lang, F. (2019). *EIF Business Angels Survey 2019*. EIF Working Paper 2019/60.

https://www.eif.org/news_centre/publications/eif_working_paper_2019_60.pdf.

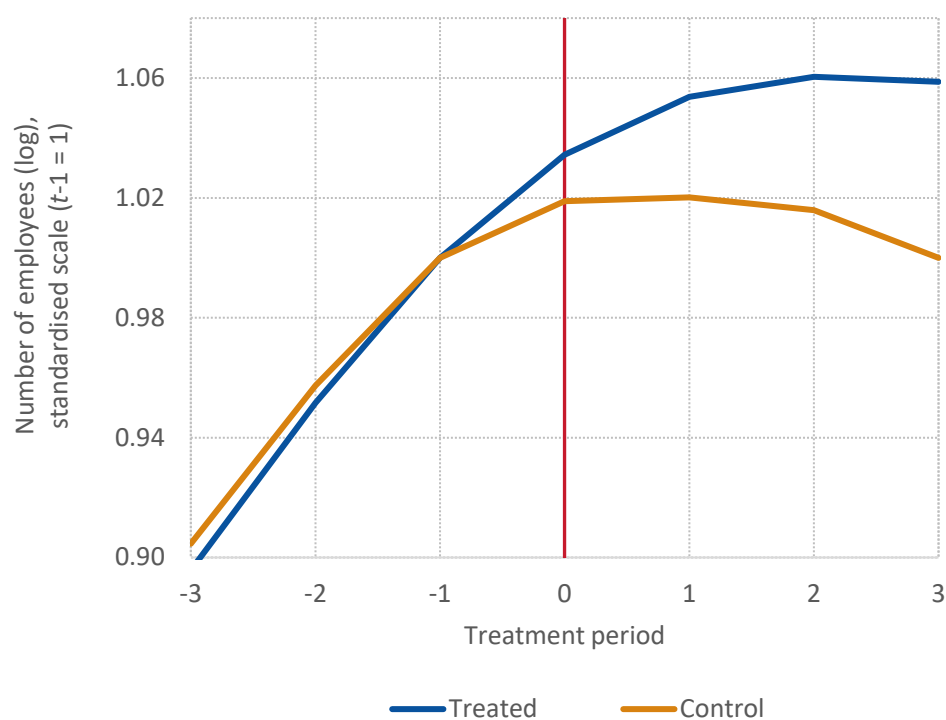
¹⁰ <https://www.eib.org/en/publications/economics-working-paper-2020-04>.

ensures that the performance difference between the two groups of firms can be given causal interpretation.

The studies found a significant positive impact on employment and investment activity at SMEs in the European Union in the three years that follow the receipt of an EIB-supported loan (Figure 12). Access to external funding on advantageous conditions therefore seemed to improve the economic situation of recipient firms to such an extent that they are more likely to keep employees and/or hire new ones than firms without EIB support. Firms receiving EIB lending increased, on average, their employment by 4–6% relative to the peer group of firms without EIB financing.

The studies also showed a positive impact on the fixed assets of SMEs, with the increase ranging from 8% to 14%, indicating that the beneficiaries typically used the loans disbursed to purchase investment goods. The findings also showed that the impact on employment and investment tended to be somewhat greater for firms that were smaller or younger than average.

Figure 12. Impact on employment of EIB-supported lending to Small and Medium-Sized Enterprises



Note: Performance of EIB loan beneficiaries ('Treated') against the comparison group ('Control') in the three years before and after the loan allocation, which takes place in year $t = 0$.

Case study: The economic impact of EIF venture capital and credit guarantee operations

For the EIF, the risk-financing arm of the EIB Group, support for venture capital funds plays an important role in fostering the growth of innovative small businesses in the European Union. Today, the EIF is the largest public investor in European venture capital funds. Through a series of studies published over the last five years, EIF researchers have investigated the effectiveness and impact of this policy tool.

For example, one key study examines the impact of EIF-supported venture capital investments on the financial growth and performance of young and innovative firms. Combining data from the EIF, Invest Europe and Bureau Van Dijk's Orbis database of firms' financial accounts, the researchers were able to compare venture capital-backed firms with a comparable group of firms with no such backing. Firms with similar characteristics — except for venture capital backing — were identified through exact and propensity score matching. The researchers used new tools such as machine learning to scan through start-up business models and identify promising entrepreneurial ideas, as well as geospatial data and airline routes to better simulate the investment selection process of European venture capital firms.

The results confirm that EIF-supported venture capital investments have had a positive impact on the growth of start-up firms. After five years, supported firms achieved higher capitalisation levels, higher revenues and faster job creation. Compared to similarly innovative firms without equivalent venture capital backing, they appear to have traded a degree of short-term profitability in exchange for faster growth¹¹. In turn, such a growth-centric strategy leads to increased chances of favourable exit outcomes, as shown in a follow-up EIF study¹². After five years, start-ups backed by EIF venture capital had a 10.3 percentage point (pp) higher chance of being acquired and had a 1.7 pp higher rate of going public than similar firms not backed by venture capital (Figure 13). EIF venture capital also positively affected start-ups' patenting rates, which were 10 pp higher than comparable start-ups not backed by venture capital.

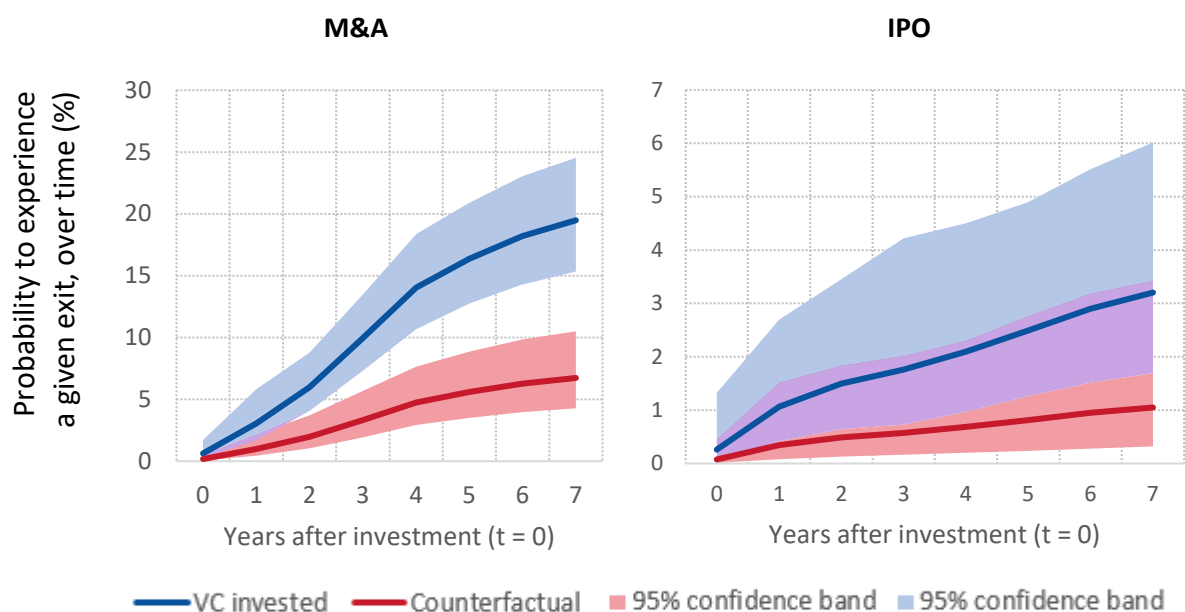
Another strand of EIF research initiated in 2015 focuses on the impact of credit guarantees¹³. These guarantees are an important policy tool to support credit availability for SMEs,

¹¹ Pavlova, E. and Signore, S. (2019). *The European venture capital landscape: an EIF perspective. Volume V: The economic impact of VC investments supported by the EIF*. EIF Working Paper 2019/55, EIF Research & Market Analysis. April 2019. https://www.eif.org/news_centre/publications/EIF_Working_Paper_2019_55.htm.

¹² Pavlova, E. and Signore, S. (2021). *The European venture capital landscape: an EIF perspective. Volume VI: The impact of VC on the exit and innovation outcomes of EIF-backed start-ups*. EIF Working Paper 2021/70, EIF Research & Market Analysis. February 2021. https://www.eif.org/news_centre/publications/EIF_Working_Paper_2021_70.htm.

¹³ Asdrubali, P. and Signore, S. (2015). *The Economic Impact of EU Guarantees on Credit to SMEs. Evidence from CESEE countries*. European Commission's European Economy Discussion Paper 002 and EIF Working Paper 2015/29. July 2015. http://ec.europa.eu/economy_finance/publications/eedp/pdf/dp002_en.pdf and https://www.eif.org/news_centre/publications/EIF_Working_Paper_2015_29.htm;
Bertoni, F., Colombo, M. G. and Quas, A. (2018). *The effects of EU-funded guarantee instruments on the performance of Small and Medium Enterprises: Evidence from France*. EIF Working Paper 2018/52, EIF Research & Market Analysis. November 2018;

Figure 13. Impact on exit rates of EIF-supported venture capital investments in start-ups



Note: Exit rates of EIF venture capital beneficiaries ('VC-invested') against the comparison group ('Counterfactuals') in the seven years after the venture capital investment, which takes place in year $t = 0$.

particularly during economic downturns. The EIF implements and manages credit guarantee programmes on behalf of the European Union. The studies analysed 360 000 loans, worth EUR 22 billion, that were guaranteed by the EIF. To estimate the impact of these guarantees on SME growth and survival, these studies used a combination of propensity score matching and difference-in-differences statistical techniques to compare beneficiary SMEs to similar firms that did not receive EIF credit guarantees.

EIF-guaranteed loans had several positive effects. They increased firms' assets by 7% to 35%, sales by 6% to 35%, and employment by 8% to 30%, depending on the characteristics of the beneficiary pool and the industrial landscape of the target geographical region (Figure 14). EIF guarantees also caused a decrease in bankruptcy rates by about a third, and by as much as a half in some countries. There was little evidence that SMEs became more profitable as a result of the guarantee. However, studies found some evidence that credit guarantees supported growth in productivity over the longer term. Unsurprisingly, the positive impact of credit guarantees appears to be stronger for younger and smaller firms which typically experience more severe credit rationing in times of economic stress.

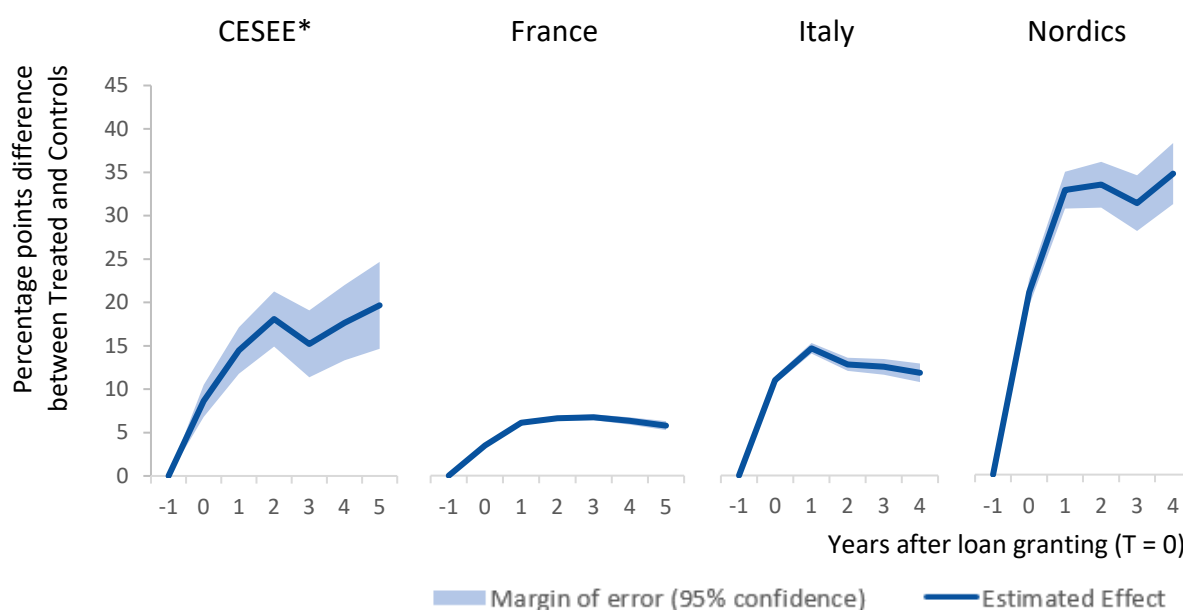
These studies support the view that credit guarantees are an important policy tool to help firms weather macroeconomic crises. They help firms to maintain and increase employment, a particularly key aspect in the economic crisis induced by the COVID-19 pandemic.

Bertoni, F., Brault, J., Colombo, M. G., Quas, A. and Signore, S. (2019). *Econometric study on the impact of EU loan guarantee financial instruments on growth and jobs of SMEs*. EIF Working Paper 2019/54, EIF Research & Market Analysis. February 2019.

http://www.eif.org/news_centre/publications/EIF_Working_Paper_2019_54.htm;

Brault, J. and Signore, S. (2019). *The real effects of EU loan guarantee schemes for SMEs: A pan-European assessment*. EIF Working Paper 2019/56, EIF Research & Market Analysis. June 2019. http://www.eif.org/news_centre/publications/EIF_Working_Paper_2019_56.htm.

Figure 14. Impact on revenue of EIF credit guarantees to Small and medium-sized Enterprises



Note: Percentage point difference between the revenue of EIF guarantee beneficiaries ('Treated') against the comparison group ('Control') in the years before and after the loan allocation, which takes place in year $t = 0$. *CESEE (Central, Eastern and South-Eastern Europe): Bulgaria, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. Nordics: Denmark, Finland, Norway and Sweden.

Case study: Assessing the impact of private sector projects in Africa

The EIB has been pioneering the application of micro impact studies to private sector projects in the development context. Through a partnership with the Global Development Network, the EIB has so far supported 16 studies on projects it has backed with impact investment finance¹⁴. An innovative new approach was needed and 30 talented young researchers from African, Caribbean and Pacific countries were recruited and given support as they carried out studies under the mentorship of a panel of five renowned experts in the impact evaluation field.

The studies have deepened both the EIB's and our clients' understanding of the impact of these projects by enabling researchers to conduct rigorous and in-depth research on the ground. Topics investigated have ranged from internet provision for schools and the promotion of midwife-based health services to the availability of microfinance and mobile payments services. While local researchers bring an important understanding of the local context, the expert panel provides the work with a stamp of approval, ensuring that the studies use state-of-the-art techniques for impact evaluation and assessment and comply with high technical standards.

¹⁴ <https://www.eib.org/en/publications-research/economics/impact/eib-gdn/index.htm>.

This joint programme aims to improve the effectiveness of private sector lending, as well as giving an insight into the impact of EIB financing that would otherwise be very hard to capture. Moreover, it enhances capacity for impact assessment, both in developing countries by providing young researchers with valuable training and experience, and within the EIB by bringing new perspectives on its development impact. The programme has demonstrated the feasibility of bringing local researchers together with an expert scientific committee so that they can conduct high quality research in collaboration with project promoters.

The impact studies conducted under the programme used a variety of econometric techniques, tailored to a diverse set of investments and to developing country contexts¹⁵. In some cases, the researchers used experimental or quasi-experimental techniques to identify a causal relationship between EIB investment and impact on the ground. For example, a study of Baobab, a microfinance institution serving around 22 000 female clients in rural northern Ghana, showed that Baobab is successfully reaching out to poor women. The women are mostly using this finance to invest in existing businesses.

To gain insights into the causal impact of the finance provided by Baobab, another 541 women who had never borrowed from a formal financial institution were interviewed, some in districts with no Baobab branch. This comparison group was compared with Baobab clients using propensity score matching to control for observable differences between the groups. The evidence suggested that Baobab had indeed succeeded in reducing poverty amongst its clients, even when controlling for differences between Baobab clients and the comparison group. Extreme poverty rates were also higher among respondents who had never borrowed than among those who had taken out at least one loan from Baobab.

The study also examined various measures of how women control their lives and resources and found that Baobab's support may have increased economic empowerment among the women served. The results suggest that investing in microfinance has the potential to improve lives among the poorest communities, and to support women in particular, although the benefits are likely to be very context-specific.

Case study: The EIB Group's impact on the development of the green bond market

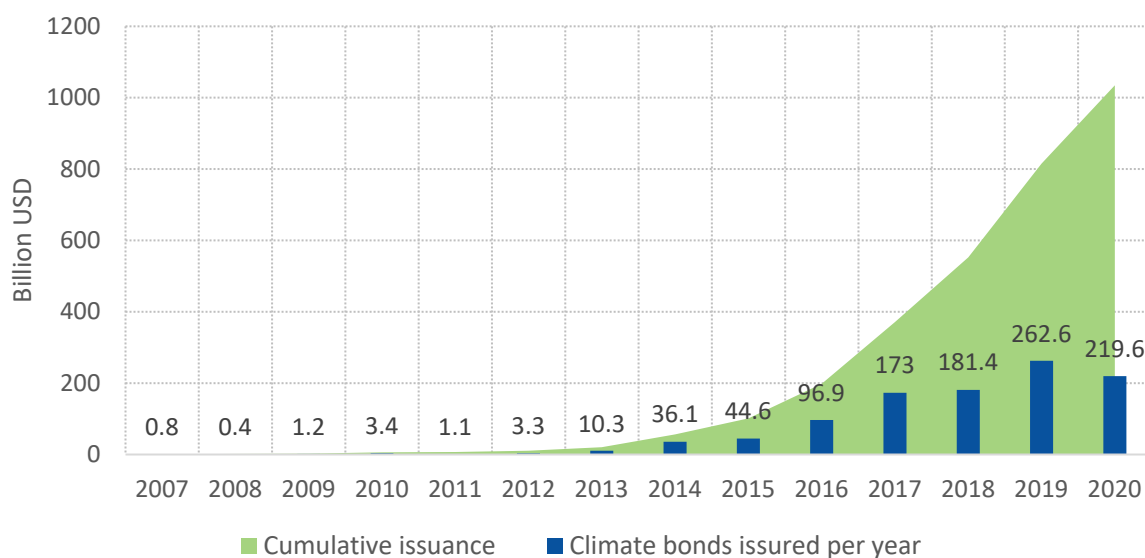
In 2007, the EIB Group kicked off the green bond market with the issuance of the world's first "use-of-proceeds" green bond, branded as a climate awareness bond. Since then, the Group's climate activity grew from 1% of bond issuance in 2007 to 10% in 2020 and it is expected to grow even further in the context of the EIB's Climate Bank Roadmap. Moreover, a strategic objective of the Bank is to contribute to the growth of the green bond market by supplying liquid, benchmark-size transactions and developing market governance and standards.

Since the EIB's inaugural climate bond issuance, the green bond market has grown substantially, surpassing cumulative issuance of USD 1 trillion in 2020 (Figure 15). In recent

¹⁵ EIB (2020), *The impact of private sector projects in Africa: Studies from the EIB-GDN Programme, Cycle 2*. <https://www.eib.org/en/publications/the-impact-of-private-sector-projects-in-africa-cycle-2>.

years, dedicated market infrastructure has emerged for green bonds alongside an increasingly harmonised, well-defined and market-based set of guidelines and principles. The green bond market has expanded across geographies, currencies, sectors and projects, and it continues to deepen.

Figure 15. Growth of the global green bond market



Source: Environmental Finance Database, extracted on 23/10/2020.

The EIB Group Evaluation function examined the extent of the Bank’s impact on fostering the development of the green bond market between 2007 and 2020¹⁶. It also looked at how the EIB’s green bond framework compares with those of peers, whether climate bond issuance is cost-effective, how the Group’s climate bond and sustainability awareness bond programmes fit together, and how climate bonds might be used to stimulate more green investment.

The evaluators used a range of methods to gain an in-depth understanding of the role the EIB Group has played, and how it can further its impact, including:

- An in-depth review of EIB documentation, a literature review on the development of sustainable finance markets and a comparative analysis of six peer institutions.
- Interviews with appropriate EIB staff and the entire spectrum of market participants such as underwriters, book runners, issuers, investors, etc.
- An analysis of quantitative data including market data and EIB climate bond data, including an analysis of the price premium achieved by green bonds.
- A data interpretation workshop with EIB staff to put the findings into context.

The evaluation found that the EIB Group’s climate bonds have contributed to green bond market growth and depth, providing “proof of concept” and playing an important role in

¹⁶ EIB Group Evaluation, 2021, *Evaluation of the EIB’s Climate Awareness Bonds*. <https://www.eib.org/en/publications/evaluation-of-the-eibs-climate-awareness-bonds>.

educating potential issuers and investors. The Group has also played a pioneering role in developing market governance and standards, advocating the establishment of a single EU Taxonomy for sustainable activities as a priority. The Bank was at the forefront of the development of the Green Bond Principles and has been a key contributor to the EU Green Bond Standard. According to market participants, the EIB Group has brought considerable technical knowledge and capital markets expertise to discussions on market guidelines and standards. Dealers, investors and peer issuers also recognise that the EIB has raised the bar for green bond transparency and disclosure standards.

The evaluation also found that climate bonds are a cost-effective way of raising finance and dovetail neatly with the Bank's sustainability bonds. It revealed that the premium achieved by the Bank's climate bonds is not yet systematic and sizeable enough to pass on to borrowers as an incentive for green investments. However, the climate bonds can also provide non-financial benefits to borrowers by creating a green "stamp of approval" for projects. The evaluators recommended that the EIB Group should systematically monitor and measure any pricing advantage on the climate bonds with the aim of transferring it on the lending side to encourage green investment in the future, if permitted by market and commercial considerations.

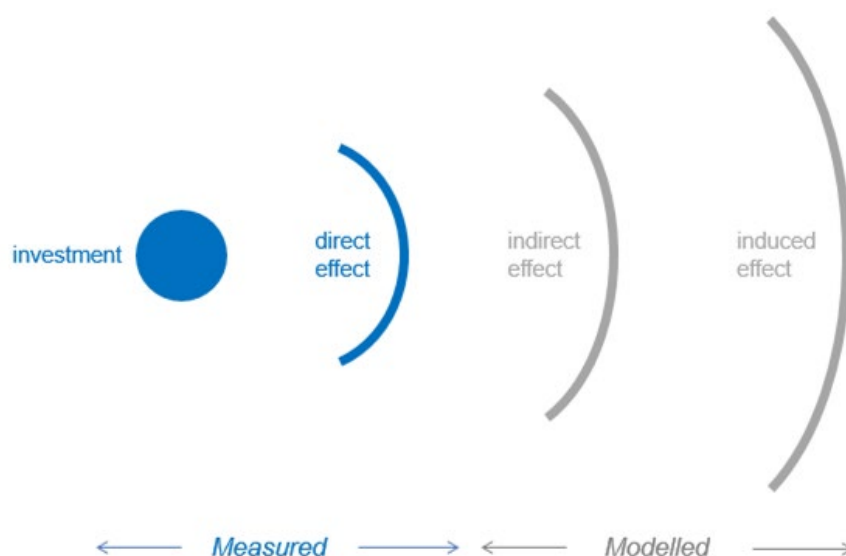
4. Macroeconomic impact modelling

Estimating large-scale, economy-wide impact

Impact modelling allows us to go beyond the direct effects of a project or intervention to look at economy-wide implications such as the contribution to growth and jobs, or the consequences for climate change mitigation, which we cannot easily measure at the level of individual projects. For example, a project to build an urban tram system will entail the direct creation of jobs during the construction phase, but it may also have a more significant, but less direct impact on the local economy, and even further afield. By reducing congestion and transport costs, it may improve local productivity and provide a stimulus to local businesses, but may also lower spending on car transport. The supply of rolling stock and construction materials will also have economic effects. These kinds of economy-wide effects and interlinkages are hard to estimate at the level of an individual project and can be better taken into account in a large-scale macroeconomic model that explicitly looks at the positive and negative linkages between different sectors of the economy. The impact of policies on climate change are ultimately modelled in a similar way.

The EIB Group uses macroeconomic modelling to gain insight into the overall macroeconomic effect of its activities on jobs and GDP growth. This gives a more complete picture of the EIB Group's macroeconomic impact than, for example, the project-level measurement of jobs directly created or supported by companies that benefit from our financing. That said, what it supplies is a model-based estimate, not a direct measurement. These two types of information — measured direct effects and modelled economy-wide effects — are therefore complementary in building up a best-possible picture of the impact of EIB Group activities (Figure 16).

Figure 16. Modelling allows the capture of indirect and induced effects



Measuring macroeconomic impact inside the European Union: the RHOMOLO-EIB model

With a focus on EIB Group activities within the European Union, the EIB has invested in developing a rigorous and credible approach to impact modelling, working together with the Joint Research Centre of the European Commission. It uses a computable general equilibrium model called RHOMOLO-EIB. It is based on the RHOMOLO model, which is developed and used by the European Commission's DG Joint Research Centre for policy impact assessment, and provides sector-, region- and time-specific simulation results.

RHOMOLO-EIB is used to assess the macroeconomic impact of EIB Group-supported activities on a year-by-year basis inside the European Union. It has also been used to assess the multi-year macroeconomic impact of the EIB-implemented European Fund for Strategic Investment (EFSI) (see Case study: *Modelling the macroeconomic impact of EFSI*).

Building on available good practice, this modelling approach necessarily faces some constraints and requires certain assumptions to be made and model specifications to be determined. The results are therefore supported by a rigorous and extensive sensitivity analysis to check the robustness of the findings in relation to the underlying model options and parameters used. The results have been demonstrated to be robust to specific model and market assumptions and in line with similar exercises by other institutions¹⁷. The EIB Group engages frequently with various stakeholders on its approach and exchanges lessons learned¹⁸.

RHOMOLO-EIB results are expressed in terms of relative increases in GDP and employment over a baseline scenario, and should be read as such in their specific modelling context. Note that the model assumes a stable environment and looks at the effect that EIB Group activities could be expected to have within that environment. It does not model shocks like the COVID-19 pandemic, or cyclical swings in economic activity. Various kinds of shocks may affect the scope of the results, but the direction and relative scope largely remain.

The model does not provide information on project additionality. At the EIB, additionality is assessed on a project-by-project basis as part of the project appraisal process. However, RHOMOLO-EIB does look at this issue from a different, complementary angle, examining the role of the EIB in channelling finance into productive investments.

Measuring macroeconomic impact beyond the European Union

Modelling the impact of EIB activities beyond the European Union in a consistent way is more challenging, given the lack of consistent and adequately detailed data for many countries. However, work is underway to also investigate the macroeconomic assessment for EIB activities outside the European Union. Several efforts are ongoing to approach this in a

¹⁷ On the impact of EFSI, see for example 2019-282-EN (EIB) and IP/19/6119 (EC). Detailed results were published as a joint JRC - EIB Policy Insights document: *The European Fund For Strategic Investments: The RHOMOLO-EIB 2019 Update* and compare to DG ECFIN: http://europa.eu/rapid/press-release_IP-14-2128_en.htm and ILO:

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_338674.pdf.

See also <https://op.europa.eu/en/publication-detail/-/publication/73700e7f-e743-11ea-ad25-01aa75ed71a1/language-en> comparing RHOMOLO, QUEST and NEMASIS models.

¹⁸ The use of the model, the assumptions made, the robustness of the results and the caveats are publicly available on the EIB website: http://www.eib.org/attachments/efs/assessing_the_macroecomic_impact_of_the_eib_group_en.pdf.

consistent manner. The EIB is currently testing an approach developed by the European development financial institutions led by the Dutch entrepreneurial development bank (FMO) and the UK's Development Finance Institution (DFI) to make available an open model called the Joint Impact Model¹⁹.

Case study: Modelling the macroeconomic impact of the European Fund for Strategic Investments

As a complement to the evaluation of EFSI undertaken by the EIB Group's evaluation function, the EIB Economics Department collaborated with the European Commission's Joint Research Centre to gauge the macroeconomic impact of EFSI on growth and employment in the EU-27 and the United Kingdom using the RHOMOLO-EIB model.

Based on the well-established RHOMOLO model originally developed by the European Commission to assess the macroeconomic impact of EU policies, RHOMOLO-EIB is particularly suited to reflecting how EFSI functioned as a public intervention. The model is able to capture the EIB Group's activity in channelling investment loans (as opposed to regulatory interventions or grants), where money is borrowed on the market, lent for a specific investment project and repaid over time. It is a spatial computable general equilibrium model, covering 267 regions in the EU-27 and the United Kingdom. Each regional economy is divided into ten economic sectors connected to one another and to the rest of the world through trade. The model relies on an equilibrium framework where supply and demand respond to price changes in order to clear markets. All decisions in the economy are reflected in the model as the optimised behaviour of different economic agents. It provides sector-specific, region-specific and time-specific simulation results.

As of 31 December 2020, the investment supported through approved operations under EFSI amounted to EUR 545 billion. The RHOMOLO-EIB model estimates that these EFSI-supported operations will create 2.1 million jobs and increase EU GDP by 2.4% by 2025, compared to the baseline scenario. These predicted outcomes are mainly driven by the short-term investment effect, which is temporary in nature and fades over time.

The main goal of EFSI, however, was to combine such short-term effects with persistent structural changes such as enhanced production technologies, better private and public infrastructure, and greater labour productivity, all of which should help improve European competitiveness and ultimately growth in the longer term. The results suggest that by 2040, EFSI-supported operations will still have created 1.3 million jobs and increased EU GDP by 1.6%, relative to the baseline (Figure 17).

The model also shows a positive long-term impact on income in all 267 NUTS 2 European regions considered. It shows that the countries hit hardest by the 2008 economic and financial crisis benefited relatively more than the best-off countries and that cohesion regions benefited significantly more than better-developed regions (Figure 18). Although the scope of

¹⁹ <https://jointimpactmodel.com/>.

the results should be interpreted with reference to the modelling framework, they appear robust and in line with the findings of similar exercises.

These first results on the impact of EFSI suggest that the initiative has made valuable contributions to the European economy. More data will become available as the implementation of projects progresses, while macroeconomic data are being collected at EU, national and regional levels. In due course, therefore, future impact assessments can further refine the results of this evaluation.

Figure 17. The impact on employment over time from EFSI-supported operations

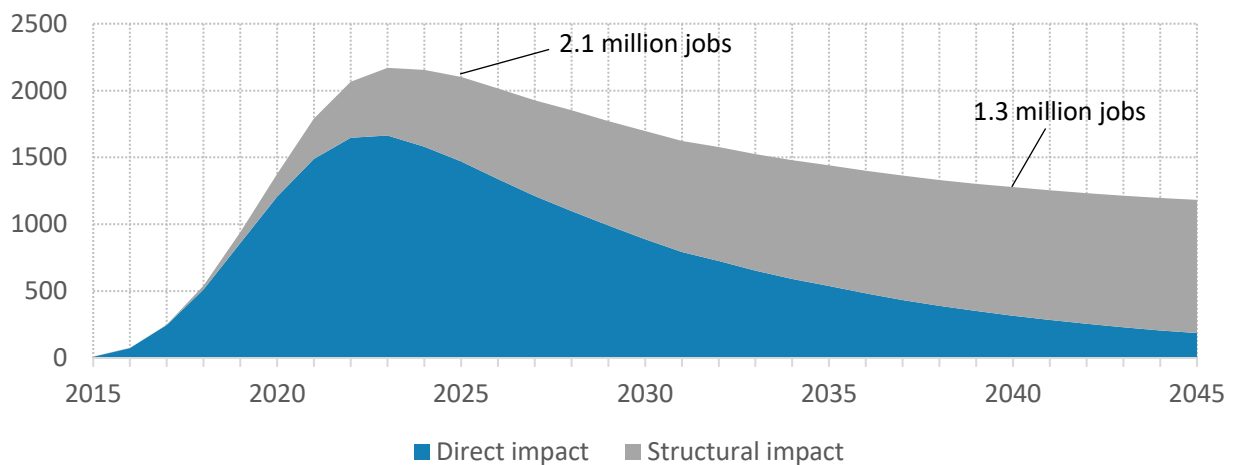
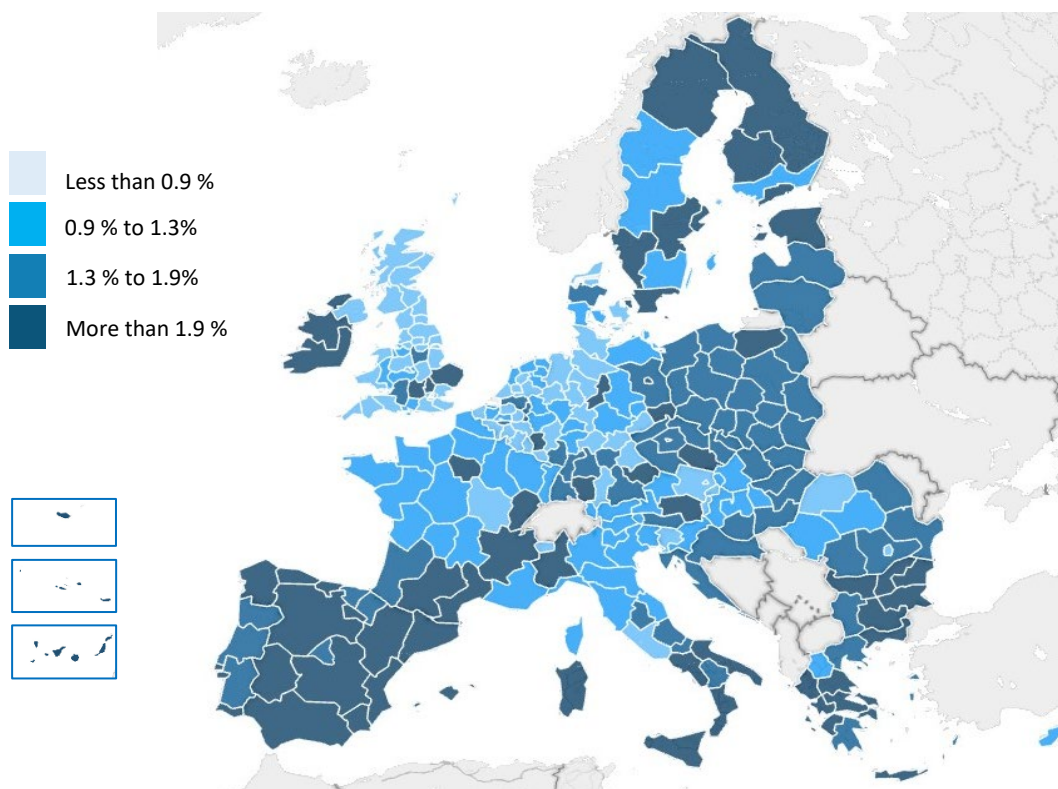


Figure 18. Estimated impact as percentage of GDP at NUTS 2 level by 2040



Case study: The Joint Impact Model — exploring macroeconomic impact beyond the European Union

Indirect economic impact can be modelled in various ways. However, for many low and middle-income countries, data availability severely restricts which models can be used. The EIB therefore only uses the RHOMOLO-EIB model (developed with the Joint Research Centre of the European Commission) for operations inside the European Union. For operations beyond the European Union, the EIB is contributing to ongoing work to build and improve macroeconomic models suited to developing country contexts. So far, in our view, the Joint Impact Model, developed in collaboration between the Dutch consultancy firm Steward Redqueen and a number of development agencies and institutions, offers the most feasible approach²⁰.

The Joint Impact Model can be used to supplement the measurement of outputs and outcomes at the project level to provide a sense of the scale of the wider, indirect macroeconomic effects of supported investments. These include:

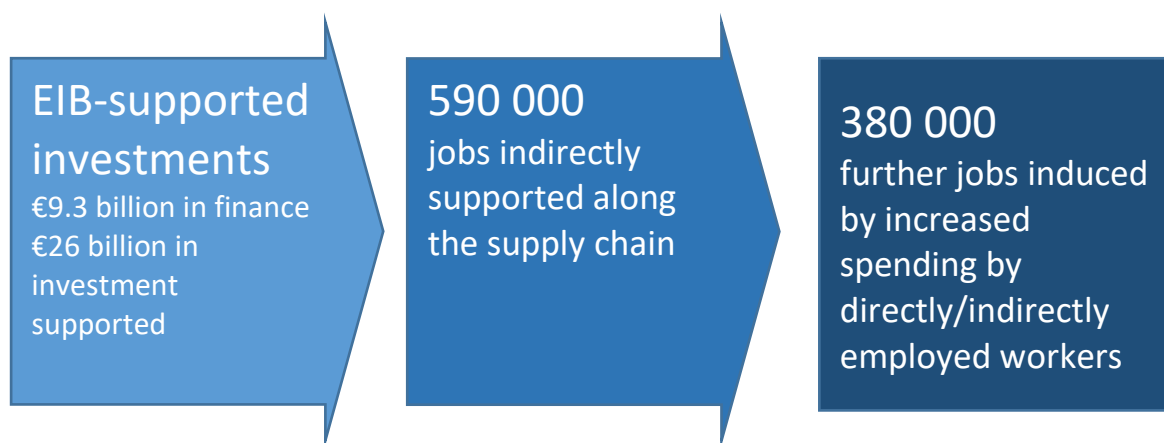
- **Indirect effects on employment along the supply chain**, such as increased demand for products in the construction of infrastructure. Supplying this demand supports additional employment.
- **The inducement of further demand and employment through increased incomes**. Both direct employment in project implementation and employment supported indirectly along the supply chain give workers more income to spend, which has a knock-on effect on demand and employment.
- **Structural effects on productivity and competitiveness**, such as the impact of increased and more reliable electricity supply on other economic sectors, with further economic effects.

We have used the Joint Impact Model to investigate the possible indirect impact on employment of EIB-supported investments beyond the European Union. The model estimates that EIB-supported investments beyond the European Union in 2020 will support some 590 000 indirect jobs along supply chains (by supplying the materials and equipment used in the project, for instance). The model estimates that a further 380 000 jobs are likely to be induced by the extra income generated throughout the supply chain (Figure 19). Currently, the only structural effect that the model considers is the effect of increased electricity supply, which is estimated to support another 6 000 jobs.

As they are produced by a modelling exercise, these results should be treated with a degree of caution. They reflect the EIB's overall portfolio of projects; results for individual countries and sectors could vary considerably. Nonetheless, they provide a sense of the scale of how EIB-supported projects beyond the European Union indirectly support employment.

²⁰ The Joint Impact Model has been developed in a collaboration effort by the Dutch consultancy firm Steward Redqueen, Proparco of France, CDC Group in the UK, African Development Bank, Belgian Investment Company for Developing countries, FinDev of Canada, and Financierings-Maatschappij voor Ontwikkelingslanden (FMO) of the Netherlands.

Figure 19. Indirect employment impact of 2020 lending: Joint Impact Model results



Case study: Modelling the impact of the EIB on regional disparities in the European Union

An important objective of the EIB Group is to support the convergence of the least developed regions within the European Union with the rest of the bloc. The EIB Group Evaluation function used the European Economic Modelling System, a dynamic spatial general equilibrium model for EU regions and sectors developed by PBL Netherlands Environmental Assessment Agency, to assess the EIB’s performance in this regard²¹.

The study covered 271 EU NUTS 2 regions within the EU-28²². The analysis considers 136 of these to be cohesion regions and 135 as non-cohesion regions. It covers EUR 658 billion in EIB financing (EUR 224 billion in cohesion regions and EUR 434 billion in non-cohesion regions) in the period 2007-2018. The total volume of investment mobilised by this financing amounts to EUR 2 342 billion, EUR 1 001 billion for cohesion regions and EUR 1 341 billion for non-cohesion regions.

The model simulates the impact of these investments on GDP, employment and productivity growth in each region. It assesses two scenarios. A baseline scenario simulates the evolution of the economy until 2050 without EIB financing. An EIB policy scenario then takes into account the investments supported by EIB financing. Considering that the two scenarios differ only in the implementation of EIB financing, the comparison of the macroeconomic aggregates between the two scenarios provides a model-based estimate of the impact of EIB-backed investment.

²¹ EIB Group Evaluation and PBL, 2021, *Evaluation of EIB Cohesion financing (2007 to 2018) - Macroeconomic impact of EIB financing on the EU-28 regions*. <https://www.eib.org/en/publications/evaluation-of-eib-cohesion-financing-thematic>. This study covers the financing provided by the EIB, rather than the EIB Group (EIF financing was not included).

²² The United Kingdom was a member of the European Union in the examined financing period, and is therefore included in the study.

The results suggest that the investments supported by EIB financing will have a sizeable positive impact for the vast majority of EU regions. The estimated impact is greatest in the period 2020-2025 when GDP increases by an average of 0.8% compared to the baseline scenario.

Furthermore, the model suggests that cohesion regions will gain, on average, more with respect to the baseline scenario than non-cohesion regions. It suggests that EU regions with relatively lower GDP per capita are likely to experience a greater GDP gain, while the richer regions gain relatively less (Figure 20). In the longer run — by 2045-2050 — cohesion regions appear to gain more than non-cohesion regions even in absolute terms. In other words, the total GDP gain, in euros, in cohesion regions by 2050 is estimated to be greater than the respective gain in non-cohesion regions. This result is notable given that the share of EIB financing going to cohesion regions represents only 34%. The model therefore suggests that the EIB does indeed contribute to the reduction of regional disparities in GDP per capita across the European Union.

The impact on employment is more limited than the impact on GDP, but is still quite sizeable. In the model simulation, the regions that experience the largest increase in employment add up to 0.7% to the number of persons employed with respect to the baseline scenario, with this impact peaking in 2020-2025 (Figure 21). These results are robust to changes in the model specifications for parameters, such as traded goods substitution elasticity and the elasticity of substitution of capital to labour.

Figure 20. Impact of investments supported by EIB financing on GDP across the EU regions by 2025-2030 (percentage change with respect to the baseline scenario)

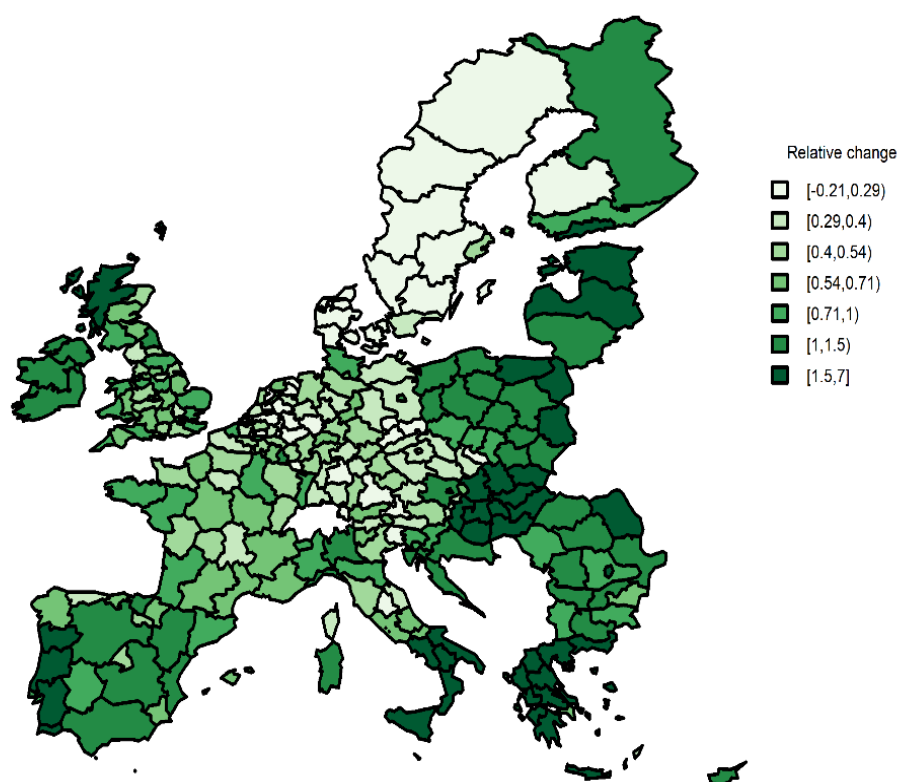
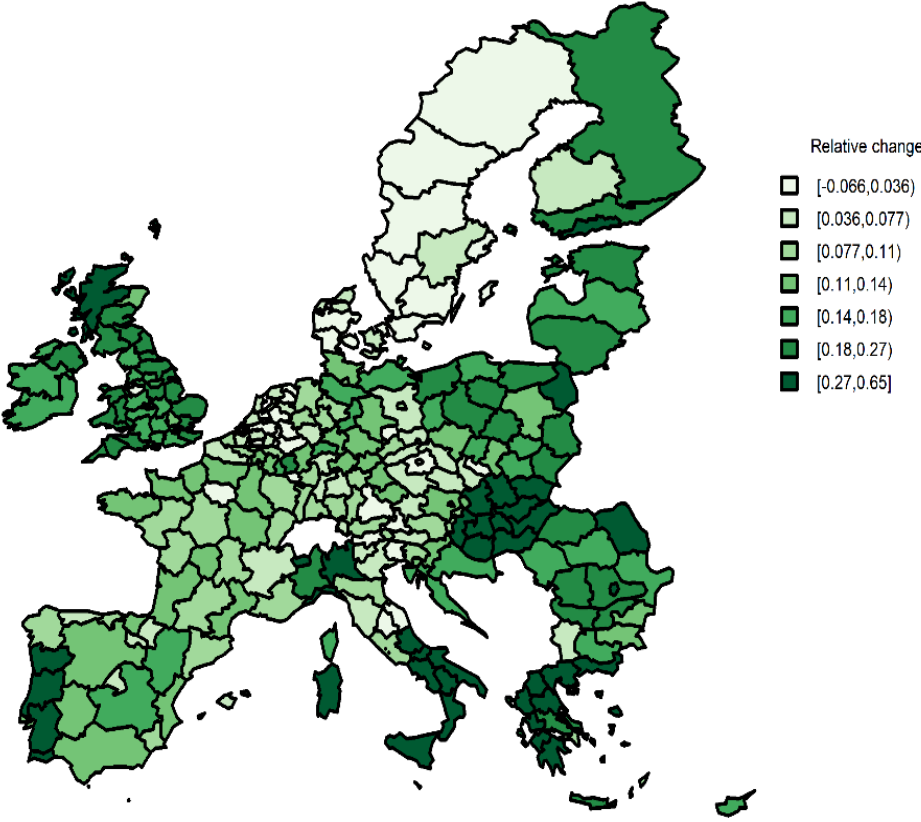


Figure 21. Impact of investments supported by EIB financing on employment across the EU regions by 2025-2030 (percentage change with respect to the baseline scenario)



5. Key messages

The EIB Group is there to improve lives and protect the health of the planet. As a policy-driven European institution, we enhance prosperity, cohesion and social inclusion within Europe. As the development finance arm of the European Union, we promote sustainable development around the world. As the EU climate bank, we help protect and enhance the health of the planetary ecosystem. We therefore care deeply about assessing and understanding the impact of our projects and financial sector operations. Continuously improving this understanding is also of vital importance to us.

Tracking impact is not always easy. It requires substantial resources, and the further we advance from direct, measurable project outputs and outcomes to examining more indirect and far-reaching impact, the greater the measurement challenges we face. Across the Group, we use different tools and approaches in a complementary way. As the report has described, we use **results tracking** to lay the groundwork for understanding the Group's impact, through the systematic assessment and review of project inputs, outputs and outcomes throughout the project cycle. We use **in-depth impact studies** to look closer at what selected projects or products achieve. Using in-depth research methods, we check and refine our understanding of how our projects make a difference. We use **macroeconomic impact modelling** to estimate the indirect impact of EIB Group activities throughout the economy, including on jobs and growth, thereby quantifying the probable scale of our impact that cannot be investigated at the project level.

The Group is striving to gain an ever-clearer understanding of the difference we make. Going forward, we will continue to work with our partners to remain at the forefront of methodological developments, responding to evolving demands, new opportunities such as the use of big data, and new developments in impact measurement.

Measuring and understanding our impact as best as we can is imperative because it **informs our decisions about when and where to invest**, and helps us achieve the policy goals set by our shareholders, the Member States of the European Union. It also **improves our effectiveness** by revealing what works best and how we can optimise our support to meet the needs of beneficiaries as successfully as possible. Lastly, the EIB Group's work on impact **supports our accountability** towards our shareholders and the public, enabling us to show what we have achieved and how we have made a positive difference to peoples' lives and to the planet.

ECONOMICS – THEMATIC STUDIES

Measuring the EIB Group's impacts

Methods and studies



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