

ECONOMICS – IMPACT STUDIES

The impact of the EIB's intermediated lending to businesses in the Western Balkans

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Impact study
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Executive summary

This report assesses the impact of the intermediated lending of the European Investment Bank (EIB) on small and medium enterprises (SMEs) in the Western Balkans, with a particular focus on employment. The EIB plays a central role in the financing of SMEs and mid-caps in the Western Balkans (Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia), where firms' access to bank-lending finance is low compared to EU standards. With the aim of spurring firms' growth, the EIB channels liquidity through financial intermediaries on favourable conditions, such as providing lower interest rates or longer tenure.

The report builds on a unique dataset that combines EIB loan-level data with firms' balance sheet data. Merging information on the allocation of loans to SMEs provided by EIB intermediated lending to financial institutions and balance sheet data from Orbis (Bureau van Dijk) has a twofold advantage. On the one hand, it provides useful information on the beneficiary SME characteristics such as firm size, profitability and employment before and after loan allocation. On the other hand, it also makes it possible to estimate the impact of EIB intermediated lending on relevant variables, such as employment and investments, by comparing loan beneficiaries with a set of firms not receiving these loans.

To assess the impact of EIB intermediated lending on firm performance, this report carries out a counterfactual analysis comparing EIB beneficiaries to a group of firms that did not receive any intermediated lending from the EIB.¹ Two steps are carried out for the statistical analysis: (i) a control group is identified among firms that did not benefit from EIB intermediated loan allocations (treatment); and (ii) the impact of EIB intermediated lending is estimated using an econometric model that compares EIB beneficiaries (treated group) with the corresponding control group. Comparability between the two groups is ensured by the inclusion of a set of financial variables measured prior to treatment.

The analysis shows that EIB intermediated lending constitutes a relevant source of funding for beneficiaries and has a positive impact on employment and firm investment in the Western Balkans. EIB allocations account for approximately 8% (median) of beneficiaries' total assets in the year prior to loan allocation. Following the allocation of a loan to an SME through EIB intermediated finance:

- **EIB beneficiaries report higher employment growth (15%)** than that reported by the control group composed of similar firms that did not receive EIB intermediated lending. This positive impact corresponds to approximately 15 additional jobs per every EUR 1 million of EIB loans issued. This number is considerably higher than the nine additional jobs resulting from a similar impact assessment carried out for allocations inside the European Union.
- **the impact on employment is stronger for firms that had no previous access to finance.** This suggests that firms with no previous access to finance are those benefiting more from the favourable market conditions offered by the EIB. Moreover, the analysis shows that the increase in employment does not come at proportionally higher costs for firms. Labour costs per employee do not increase following the increase in employment;
- **there is a positive impact of EIB lending on firm investment, as measured by fixed assets.** Firms benefiting from EIB loans report an increase in total assets of 20% relative to firms not benefiting from an EIB loan and a stronger increase in fixed assets of 35%. EIB lending enables firms to substantially invest in a credit-constrained environment where it may not be easy for firms to find a source of finance to expand.

EIB intermediated lending is shown to be an instrument that can assist SME growth in the presence of large financing gaps in the Western Balkans. SMEs are hindered by limited access to finance in the Western Balkans. While SMEs constitute a substantial share of economic activity and employment, high financing costs and credit constraints significantly impede SME growth. The economies of these countries are predominantly reliant on banks, with bank credit being the principal source of funding for all businesses, including SMEs. However, the provision of bank credit in the region is insufficient, underdeveloped and subject to volatility. A recent study by the EIB estimated the financing gap to be around USD 2.8 billion, equivalent to roughly 2.5% of nominal gross domestic product (GDP). This impact study shows that easing financing constraints for SMEs by providing of EIB intermediated lending results in growth in firm employment and investment.

¹ The approach follows a broadly similar methodology as previous impact assessments of the EIB Group's multiple beneficiary intermediated loan (MBIL) activities (Sinnott et al., 2023; Amamou et al., 2020; Barbera et al., 2022; Gereben et al., 2019), loan guarantees (Bertoni et al., 2018, 2019; Brault & Signore, 2019), venture capital (Pavlova & Signore, 2019, 2021) and venture debt (Sinnott et al., 2022).

1 Introduction

Access to bank-lending finance is constrained for Western Balkan firms and for SMEs in particular, despite their importance to the economy.² Financial markets are underdeveloped in the Western Balkans region, where credit to non-financial corporations is approximately 23% of GDP, compared to 40% in the European Union (EIB & European Bank for Reconstruction and Development (EBRD), 2022). Moreover, evidence from the Enterprise Survey shows that 45% of firms in need of a loan are unable to secure one either because they are rejected (2%) or, more often, because they are discouraged from applying (43%). Unfavourable interest rates are among the most frequent causes of why firms feel discouraged when applying for a loan, together with limited availability of assets to pledge as collateral and the large size of the loan requested. While a lack of access to finance is a concern for most firms, SMEs face even greater constraints as they are generally more opaque and riskier than larger businesses³. The difficulties that SMEs have in accessing finance is a concern given their importance for economic growth and employment.

The EIB has been supporting lending to SMEs in the Western Balkans since 2008. The EIB's support for SMEs mainly consists of intermediated lending, which accounts for, on average, 8% of firms' total assets. By operating through commercial banks, the EIB has reached 28 400 companies and sustained approximately 500 000 jobs.⁴ Beneficiaries enjoy favourable financing conditions on the loans that they sign through commercial banks, making them affordable and tailored to their needs. The EIB has also offered more targeted support to firms in the Western Balkans. For example, it offered a EUR 400 million package to SMEs to help their recovery from the COVID-19 pandemic. It also deployed a set of emergency measures — including wider eligibility criteria, shorter tenors and accelerated disbursements — in an effort to mitigate the immediate negative impact of the pandemic on the liquidity and viability of small businesses.

After 15 years of EIB operations in the Western Balkans, this report provides first evidence on the impact of EIB SME lending on its beneficiaries. It shows that that EIB beneficiaries grow significantly stronger than non-beneficiaries following the receipt of the loan and their growth remains stable over time. Moreover, the analysis estimates the impact of EIB intermediated lending on employment and on the number of jobs created. EIB lending contributes to approximately 15 new jobs per EUR 1 million loan issued, as opposed to nine new jobs in the European Union (Sinnott et al., 2023). These results are larger for firms that had no previous access to bank-lending finance before receiving an EIB loan. Finally, the analysis shows that beneficiaries report higher investments, as their fixed assets increase faster than those of their peers in the years following loan allocation.

² See European Commission (2018). Following EU recommendation 2003/361/EC, the term SME refers to firms with up to 249 employees. In accordance with the European Commission's recommendation, the European Investment Bank defines mid-caps as firms with 250 to 3 000 employees.

³ There is a large literature showing SMEs' difficulties in accessing bank-lending finance. See for example Beck et al., 2006c

⁴ See: https://www.eib.org/attachments/thematic/the_eib_group_support_for_smes_in_the_western_balkans_en.pdf

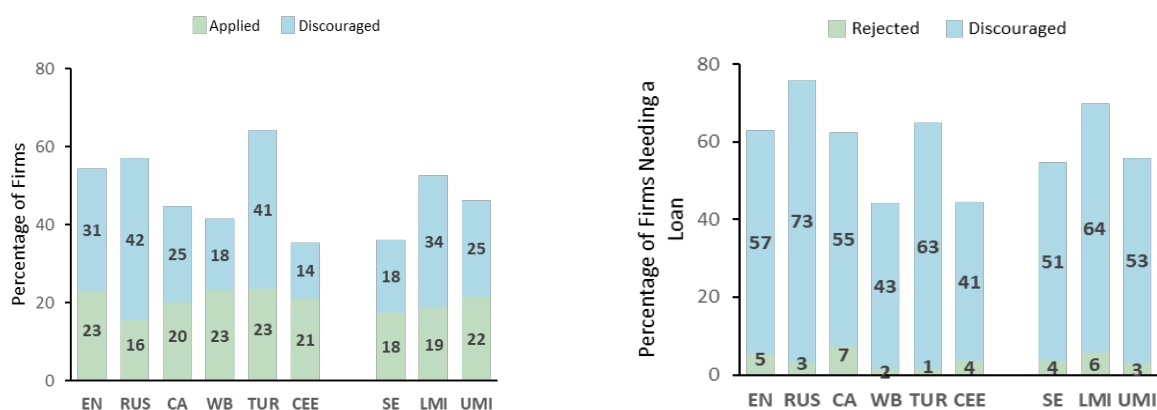
2 SMEs in the western balkans

SMEs are the backbone of economic activity in the Western Balkans. As countries opened up to private investments in the 1990s, newly established firms (prevalently SMEs) spurred economic growth in the region by enabling the transition from a large state-owned structure to a market economy (Bartlett et al., 2002). Today, SMEs represent 99% of all active companies, contribute to up to 81% of value added and account for 72% of total employment in the region.⁵ They are the biggest employer in a region characterised by structurally high levels of unemployment and are among the key contributors to the adoption and dissemination of innovation (Atanasijević et al., 2021). While they are able to attract skilled labour to support innovation, SMEs also contribute to promoting social inclusion in the region by providing jobs.

A lack of access to finance is an obstacle to SME growth in the Western Balkans. Countries in the Western Balkans are mostly bank-based economies, where bank credit represents the main source of external funding for all firms, including SMEs. Despite this, bank credit supply is scarce and underdeveloped in the region. A recent EIB study (Akbas et al., 2023) quantified the size of the financing gap as approximately USD 2.8 billion, about 2.5% of nominal GDP. These results are complemented by an assessment of the private sector in the European Neighbourhood developed by the EIB, European Bank for Reconstruction and Development (EBRD), International Monetary Fund (IMF) and World Bank showing that credit constraints and the high cost of financing are a significant constraint for firms, especially SMEs (EIB & EBRD, 2022). While only 35% (Figure 3) of firms are in need of a loan, 45% of those in need of a loan are financially constrained SMEs (Figure 1b). Specifically, high interest rates, stringent collateral requirements and complex application procedures discourage SMEs from applying for a loan.

Figure 1. Share of firms demanding a loan and financially constrained firms

(a) Firms in need of a loan (applied for a loan plus discouraged) (b) Credit-constrained firms as share of firms needing loan



Source: EIB Business Resilience report.

Notes: The graph reports the share of firms in need of a loan (panel a) and credit-constrained firms as a share of firms needing a loan in the following geographic areas: Eastern Neighbourhood, Russia, Central Asia, the Western Balkans, Turkey, Central and Eastern Europe, Southern Europe and Lower- and Upper-middle-income countries.

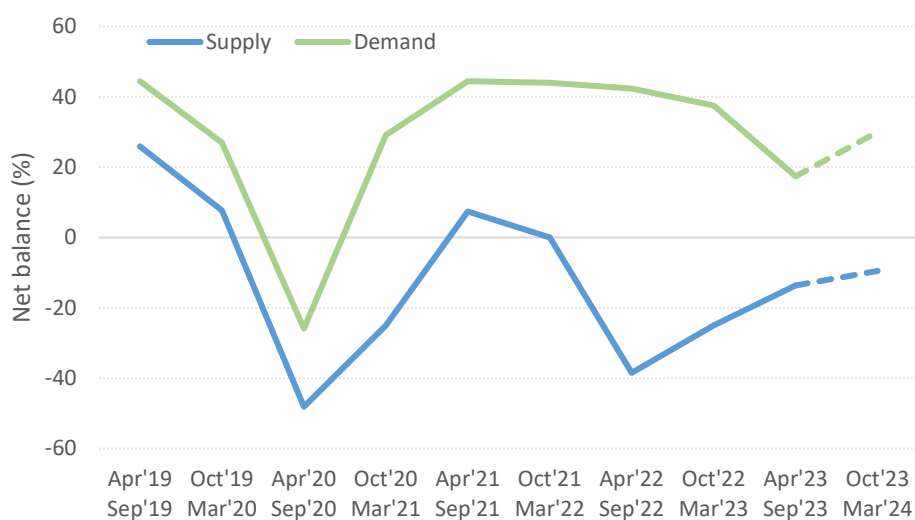
Impaired access to financial markets explains high levels of financial autarky and lower growth among Balkan SMEs. About 40% of firms in the Western Balkans are financially autarkic, although this share is even larger for small, young and less sophisticated firms. Among these, 88% are voluntarily autarkic as they choose not to rely on any form of external financing. However, although financial autarky is a voluntary choice for most of these firms, it can be an endogenous response to a challenging operating environment. Financially constrained and

⁵ The Small Business Act for Europe (SBA) 2019 released by the European Commission and relying on data provided by local statistical institutes.

autarkic firms display lower employment growth and invest significantly less than those with access to bank-lending finance (Ayyagari et al., 2021 and Erhardt, 2017).

On the supply side, the banking sector in the Western Balkans is dominated by the presence of large pan-European banking groups. Foreign pan-European banking groups operate in the Western Balkans by establishing local subsidiaries in the countries where they operate. For example, UniCredit, Intesa Sanpaolo, Raiffeisen and Erste are the main players in Serbia and in Bosnia and Herzegovina. Erste also has a strong presence in Montenegro and North Macedonia, as do Raiffeisen and Intesa Sanpaolo in Albania. Hungarian bank OTP is present in various markets (Serbia, Montenegro, Albania and many other Central and Eastern European countries), while Slovenian bank NLB is active in most Western Balkan countries with the exception of Albania. All in all, foreign banks have a market share of between 70% and 90% in most Western Balkan markets.

Figure 2. Credit supply and demand in the Western Balkans



Source: CESEE Bank Lending Survey.

Notes: The graph reports credit demand and supply for the following countries: Albania, Bosnia and Herzegovina, Kosovo,⁶ North Macedonia and Serbia. All values are net percentages. Positive values denote increasing (easing) demand (supply).

The current macroeconomic outlook shows mounting risks threatening to widen the financing gap. Recent findings from the EIB's Bank Lending Survey provide mixed evidence on firms' financing conditions. While supply has contracted following the COVID-19 pandemic and, more recently, from interest rate hikes, it has shown signs of gradual recovery (Figure 2). At the same time, however, financial intermediaries also reported concerns over the deterioration of credit quality and on a likely increase in non-performing loans, which could trigger a further drop in credit supply. On the borrower side, demand for credit has remained resilient and is expected to improve, mostly driven by working capital needs and by fixed investments.

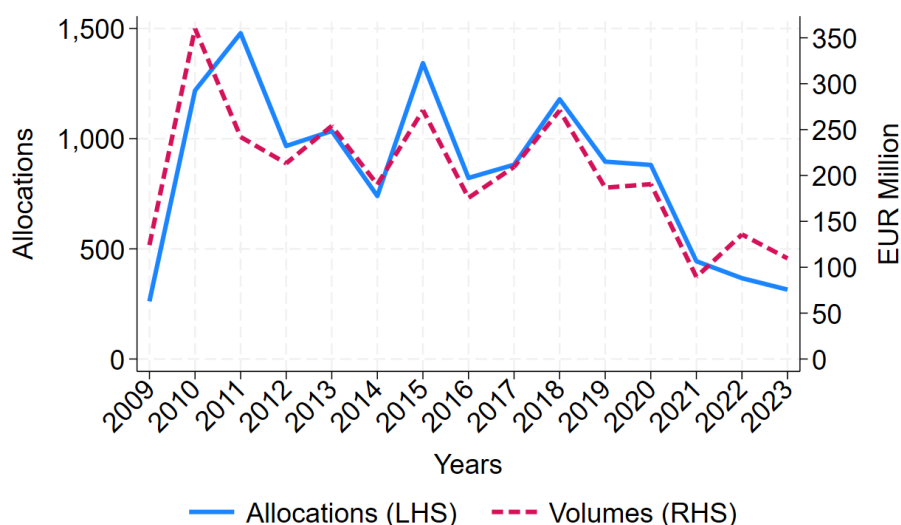
⁶ This designation is without prejudice to positions on status and is in line with UNSCR 1244/1999 and the International Court of Justice (ICJ) Opinion on the Kosovo declaration of independence.

3 Data and descriptives

This report builds on a unique dataset combining loan-level data on EIB intermediated loans (allocations) to SMEs (beneficiaries) with firms' financial information from Orbis. The loan-level data report information on intermediated lending operations to SMEs and mid-caps in Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia between 1 January 2009 and 31 May 2023. This loan-level data consists of information on loan dates, volumes, maturity, and fiscal/tax identifiers of all parties involved. Approximately 10 500 firms benefited from an EIB allocation during this 15-year time frame. To gain a better understanding of beneficiaries' characteristics, loan-level data were then merged with firms' financial data from Orbis (Bureau van Dijk). Orbis is a widely used firm-level dataset containing balance sheet and income statement information, as well as information on variables such as number of employees. Firms' financial data were then cleaned following Kalemli-Ozcan et al., (2023) and it was then restricted to a balanced sample of firms usable for impact. Among the 10 500 EIB beneficiaries, the final number of firms usable for impact assessment is approximately 4 600. [Figure 17](#) in Appendix 1 shows the share of beneficiaries with financial data in Orbis over time.

EIB lending volumes for SMEs in the Western Balkans have been declining since 2021. [Figure 3](#) shows the evolution of loan numbers and volumes from 2009 to 2023. The number of allocations increased sharply in 2010 and then stabilised at an average of 1 000 new loans a year until 2020. Similarly, allocation volumes fluctuated around EUR 250 million a year until 2020. Allocation volumes and contract numbers halved in 2021. The drop in volumes can only partly be explained by the issuance of targeted COVID-19 block allocations (not reported in [Figure 3](#)).

Figure 3. EIB intermediated lending: Number of allocations to firms and overall lending volumes

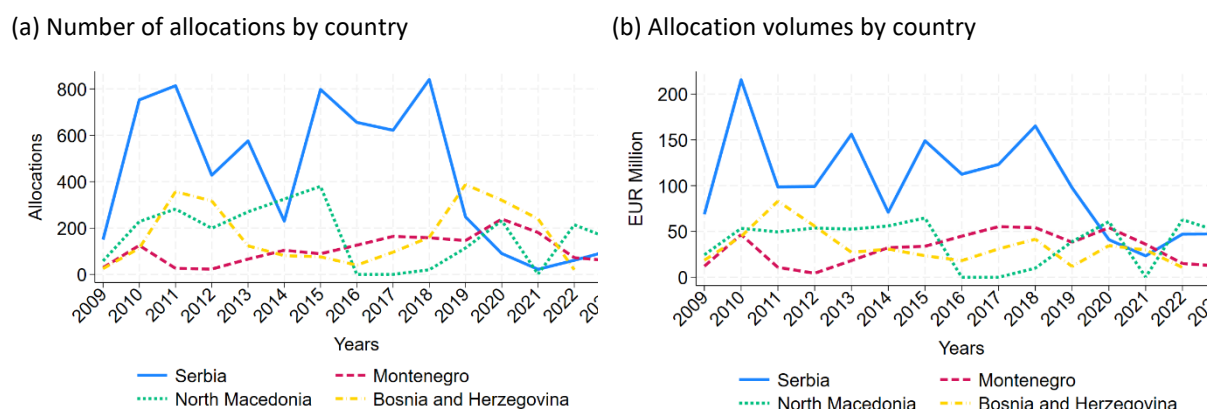


Source: Calculations based on internal EIB loan data.

Notes: The graph reports the total number of allocations (left axis) and the total allocation volumes (right axis). The number of allocations and allocation volumes have been computed by year of loan allocation. Volume amounts have been winsorised at the 99% level. Volumes do not include COVID-19 block allocation loans.

The drop in the number of contracts and EIB lending volumes was larger in Serbia than in the other countries in the region. [Figure 4a](#) shows the number of allocations and [Figure 4b](#) shows allocation volumes by country. Serbia already reported a substantial drop in the number of allocations in 2019, although the overall figure was counterbalanced by larger allocations to Bosnia and Herzegovina and North Macedonia in the same years. When looking at allocation volumes, [Figure 4](#) shows that the drop in 2021 was mainly driven by a reduction in the volume of allocations to Serbia.

Figure 4. EIB intermediated lending: Number of allocations to firms and volumes per country

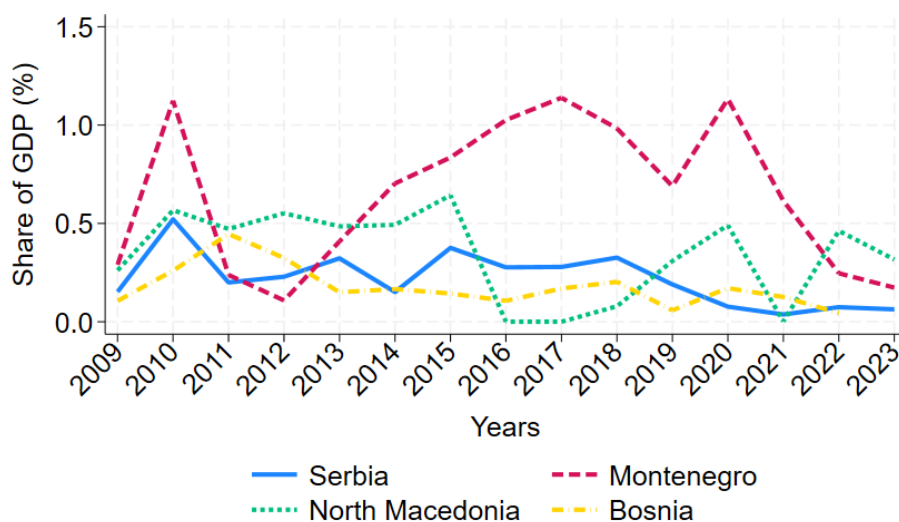


Source: Calculations based on internal EIB loan data.

Notes: The graph reports the total number of allocations by country (left axis) and the total allocation volumes by country (right axis). The number of allocations and allocation volumes have been computed by year of loan allocation. Volume amounts have been winsorised at the 99% level. Volumes do not include COVID-19 block allocation loans.

EIB intermediated lending represents an average of 0.35% of national GDP. [Figure 5](#) reports total allocation volumes to Balkan SMEs and mid-caps scaled by nominal GDP in euros. It shows that, while allocations to Serbia and Bosnia Herzegovina have been stable over time, EIB lending volumes to North Macedonia and Montenegro comprise a higher share of GDP, although they are also more volatile. Allocations to Montenegro account for an average of 0.6% of GDP. This is the highest of the four countries considered, where figures range from 0.1% to over 1% of GDP.

Figure 5. EIB Intermediated lending: Allocations and volumes as a share of GDP



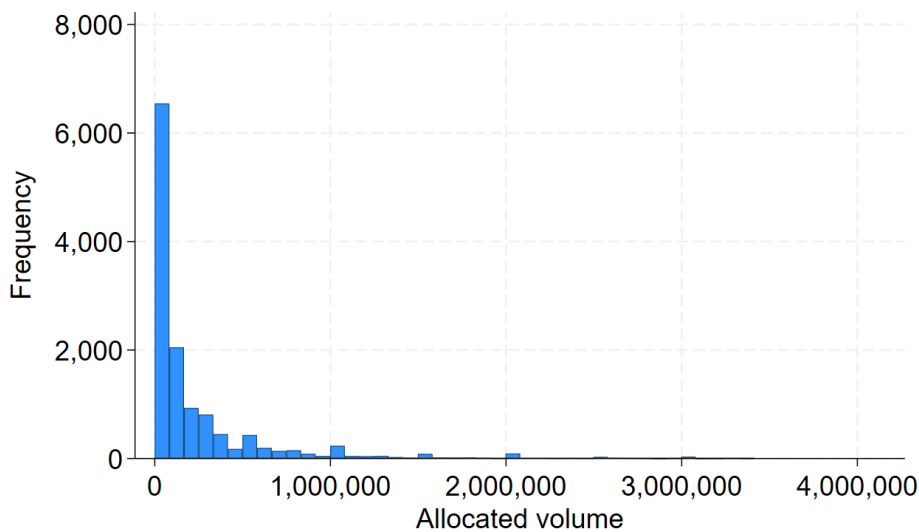
Source: Calculations based on internal EIB loan data. IMF data on national GDP values.

Notes: The graph reports the total number of allocations by country scaled by nominal GDP. Volume amounts have been winsorised at the 99% level. Volumes do not include COVID block allocation loans. GDP values are end-of-year figures and are not seasonally adjusted.

Loans granted to EIB-funded SMEs are generally for less than EUR 1 million. [Figure 6](#) reports the distribution of the size of loans provided to SMEs between 2009 and 2023 in all of the four countries considered in the analysis. The median loan amount is approximately EUR 100 000, while the average is higher and approximately equal to EUR 350 000. The difference between the median and mean loan size is due to a few large loans issued to a small number of beneficiaries. Moreover, although half of loans are approximately EUR 100 000 or larger, the left tail of the distribution is much shorter, suggesting that smaller loans are more homogeneous in terms of size than

larger ones. Finally, the loan size in the Western Balkans region is typically larger than similar EIB intermediated lending to SMEs in the European Union (see [Figure 7a](#) in Sinnott et al., 2023).

Figure 6. EIB Intermediated lending: Loan size distribution



Source: Calculations based on internal EIB loan data.

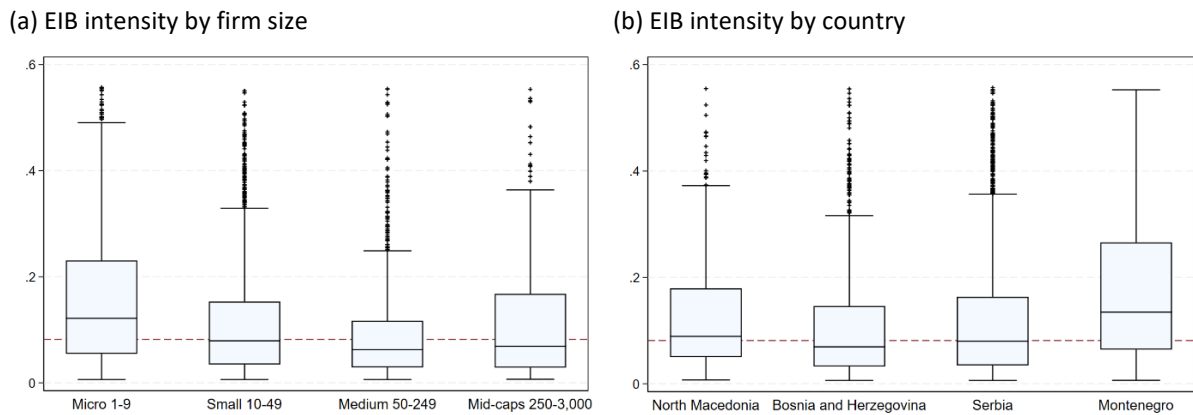
Notes: The graph reports the distribution of allocation volumes between 2009 and 2023. Volume amounts have been winsorised at the 99% level. The median allocation size is EUR 100 000, the average allocation size EUR 350 000. Volumes do not include COVID block allocation loans.

EIB allocations represent 8% of beneficiary firms’ total assets. To measure the importance of EIB lending for its beneficiaries, allocation volumes have been scaled by total assets in the year before the firms are allocated a loan. The report refers to this measure as EIB intensity. [Figure 7](#) shows the distribution of EIB intensity in the form of a box plot. A box plot is composed of a box referring to the interquartile range of the distribution (defined as the range between the 75th and 25th percentile of the distribution) and of adjacent values. Upper and lower adjacent values show part of the distribution that extend by 1.5 times the width of the interquartile range. Box plots also include median values, represented by a horizontal line within the box.

EIB loan allocations to SMEs are proportionally larger for micro-firms (one to nine employees) and for firms located in Montenegro. To facilitate comparison between different firm sizes, beneficiaries have been grouped into four different categories according to the EIB’s standard classification.⁷ The EIB definition is similar to that adopted by other organisations, including the Organisation for Economic Co-operation and Development (OECD). In line with this definition, SMEs have been classified into micro-enterprises (one to nine employees), small-enterprises (ten to 49 employees), medium enterprises (50 to 249 employees) and mid-caps (250 to 3 000 employees). [Figure 7a](#) shows that the median EIB intensity is approximately 8% of firms’ total assets (illustrated by the red dotted line), although this value varies depending on the firm size. EIB intensity is higher for micro-enterprises (12%) and lower for medium-sized enterprises (6.5%), but in both cases higher than the EIB intensity for EU firms (8% and 4% for micro-enterprises and mid-caps, respectively). Moreover, [Figure 7b](#) shows that the EIB intensity is higher for Montenegrin firms, as the 25th percentile of the distribution is greater than the overall median.

⁷ See <https://www.eib.org/en/about/priorities/sme/index.htm>

Figure 7. Distribution of EIB lending intensity over size and country

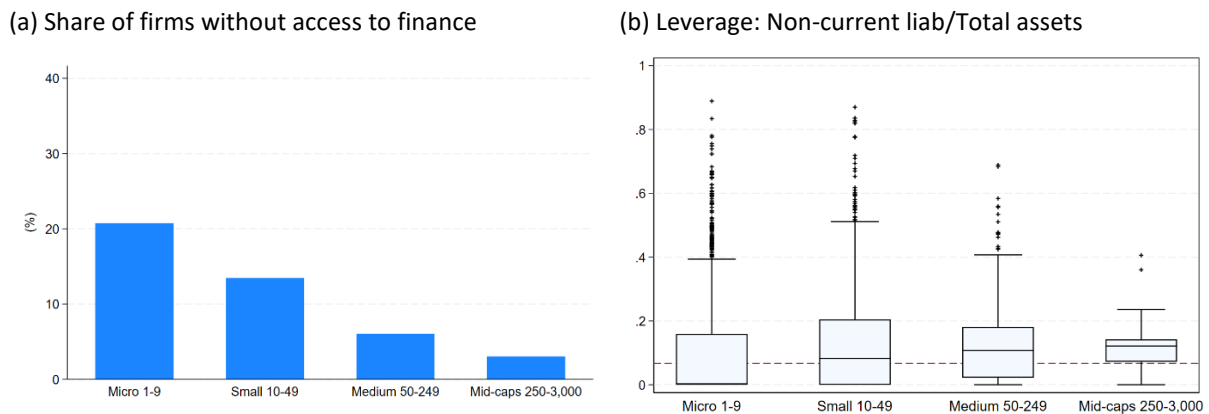


Source: Calculations based on internal EIB loan data and Orbis data.

Notes: We define EIB intensity as the ratio of allocation volumes on total assets measured the year before receiving an EIB allocation. Firm size is defined using number of employees reported in the allocation data, not Orbis data. Shares are based on allocations between 2009 and 2020. Loans account, on average, for approximately 8% of firms' total assets. This share is approximately equal to 12% for micro firms, and 6.5% for medium SMEs and mid-caps.

EIB loan allocations have also been issued to firms with low leverage and no previous access to bank-lending finance. SMEs in the Western Balkans are characterised by limited dependence on bank-lending finance, and EIB beneficiaries are no exception to this (EIB & EBRD, 2022). [Figure 8a](#) shows the share of beneficiaries without any access to finance before receiving an EIB intermediated loan. One in five micro-enterprises had no access to finance before they signed a loan with the EIB, while this share drops to 4% for mid-caps. Leverage (defined as loans over total assets) is also low among firms with previous access to bank-lending finance ([Figure 8b](#)). Although the median leverage is approximately 7%, this varies considerably depending on the size of the firm. Micro-enterprises had a median leverage of approximately 2%, while this increases to 15% for mid-caps.

Figure 8. Leverage and access to finance among recipients of EIB SME loans



Source: Calculations based on internal EIB loan data and Orbis data.

Notes: Leverage is defined as non-current liabilities divided by total assets the year before receiving an EIB allocation. Firm size is defined using number of employees reported in the Serapis, not on Orbis data. Shares are based on allocations between 2009 and 2020.

Finally, the average EIB beneficiary employs 35 workers in the year before receiving a loan. To gain a better understanding of beneficiaries' characteristics, Table 1 summarises key financial variables from Orbis. The table shows the average and median size of EIB beneficiaries in terms of total assets and employment. In addition, it reports on beneficiaries' investment, leverage, earnings and profitability.

Table 1. Summary statistics of beneficiaries of EIB SME lending

	<i>Obs.</i>	<i>Mean</i>	<i>Median</i>	<i>St.dev.</i>	<i>Min.</i>	<i>Max.</i>
Firm age	3,344	12.92	12.00	9.36	0.00	125.00
Number of employees	3,556	35.63	16.00	48.87	1.00	438.00
Total assets (EUR million)	3,333	1.95	0.88	2.30	0.00	10.47
Fixed assets (EUR million)	3,576	1.25	0.36	2.17	0.00	8.11
Leverage ratio	3,530	0.12	0.07	0.15	0.00	0.89
Earnings (EUR million)	3,576	2.71	1.14	3.78	0.00	12.42
Profitability (EUR million)	282	2.36	0.61	5.11	0.00	9.86
Value added (EUR million)	919	4.43	0.95	14.01	-0.03	45.05
Loans (EUR million)	3,281	0.33	0.06	0.66	0.00	2.78

Notes: Summary statistics are based on observations in the year when the loan was allocated, between 2009 and 2023. Values are trimmed at the 99% level to limit outliers. The leverage ratio is defined as non-current liabilities over total assets. Earnings are expressed as operating revenues. Profitability is defined as the firm's profits before taxes. Value added comprises the sum of a firm's net income, taxation, cost of materials, cost of labour, depreciation and interest paid.

4 Methodology

To assess the impact of EIB intermediated lending on firm performance, this report carries out a counterfactual analysis comparing EIB beneficiaries to a group of firms that did not receive any intermediated lending from the EIB.⁸ The methodology consists of three steps: (i) defining the research question of interest; (ii) identifying a “good” control group in line with the research question; and (iii) estimating the impact of EIB intermediated lending using an econometric model that compares EIB beneficiaries (treated group) with the corresponding control group.

The aim of this analysis is to assess the impact of EIB intermediated lending on SMEs and mid-caps in the Western Balkans, with a specific focus on employment. This research question considers firms receiving EIB intermediated lending (treated firms), including those that benefit from alternative lending sources in addition to the EIB. Given the research question, a “good” control group is composed of firms that: (i) do not benefit from EIB intermediated lending; but (ii) still may have received other forms of financing; and (iii) are similar to the treated firms on a set of financial variables. Alternative control groups would have answered different research questions. For example, limiting the control group to a set of firms with no previous access to finance would have answered a different question on the additionality of EIB lending for financially constrained firms and would have required a control group composed of firms without any access to bank-lending finance.

A control group of approximately 58,000 firms was selected from Orbis. While Orbis only constitutes a representative sample of Western Balkan SMEs, its sample is representative of the whole population of firms reported in national accounts. [Figure 14](#) and [Figure 15](#) in Appendix 1 report the representativeness of Orbis for Bosnia Herzegovina and for Serbia in terms of total number of companies. Since the control group is larger than the set of beneficiaries, it also includes a set of more heterogeneous firms. Yet, the analysis explicitly includes firms’ financial variables in the years before receiving EIB loans to remove potential bias in the estimates.

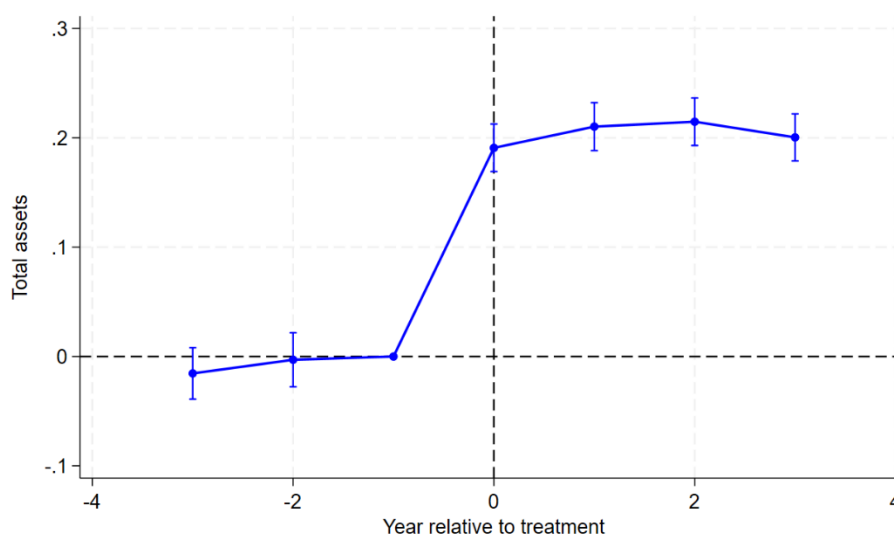
To assess impact on firm growth and employment, the analysis relies on an event study that formally tests for a causal relationship between EIB allocations and the outcome variables of interest. Event studies compare treated and control groups before and after treatment by including dynamic effects. In this setting, an event study compares the difference between EIB beneficiaries and a control group over time, with respect to the year prior to receiving a loan. The approach is robust for heterogeneous treatment effects as it estimates the interaction-weighted estimator (Sun & Abraham, 2021). Additional methodological details are provided in Annex 2.

⁸ The approach follows a broadly similar methodology as previous impact assessments of the EIB Group’s multiple beneficiary intermediated loan (MBIL) activities (Sinnott et al., 2023; Amamou et al., 2020; Barbera et al., 2022), loan guarantees (Bertoni et al., 2018, 2019; Brault & Signore, 2019), venture capital (Pavlova & Signore, 2019, 2021) and venture debt (Sinnott et al., 2022).

5 Impact assessment

Total assets increase by 20% when firms receive an EIB loan and remain constant over time. This first result reported in [Figure 9](#) shows a direct effect of EIB intermediated lending on the growth rate of beneficiaries. Firms benefiting from EIB loans report an increase in total assets of 20% relative to firms not benefiting from an EIB loan. The direct effect is confirmed by the fact that the increase in total assets has a similar order of magnitude to the average loan size reported in [Figure 7](#).⁹ Moreover, both EIB beneficiaries and firms in the control group display similar growth rates in the years before the loan signature (absence of pre-trends), and were not already growing in the years before loan allocation.

Figure 9. EIB intermediated lending: Impact on total assets of recipient firms



Source: EIB Economics Department estimations based on Bureau van Dijk's Orbis database.

Notes: The graph reports the effect of EIB intermediated loans on (log of) total assets. Coefficients are normalised with respect to the year prior to loan allocation ($t=-1$) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows a 20% increase in total assets on impact.

EIB loans have a positive impact on employment of approximately 15% on impact. Two years following the loan issuance, the impact on employment stabilises to a 20% increase. Unlike for the case of total assets, [Figure 10](#) also shows a small upward trend in the employment of EIB beneficiaries in the years before loan signature (presence of pre-trends). While only marginally significant, the presence of pre-trends weakens the causal interpretation of the large and persistent impact on employment. Taken together, [Figure 9](#) and [Figure 10](#) show that EIB intermediated lending is key in scaling up firms' size by 20% in terms of both assets and employment upon debt issuance. To facilitate comparison between different programmes, a 15% increase in employment translates to approximately 15 jobs created per EUR 1 million of loans allocated.¹⁰

The positive impact on employment is driven by firms with no previous access to bank-lending finance, as opposed to firms with existing financing from intermediaries. [Figure 11](#) reports the estimation results for two sub-groups of firms: firms with no previous access to bank-lending finance and firms with outstanding bank-lending finance before receiving EIB intermediated loans.¹¹ Although EIB intermediated lending shows a positive impact on employment for both sets of firms, results are stronger for firms without previous access to finance. On impact, firms with an existing bank-lending relationship raise employment by 8%, half of the increase reported by firms without previous access to finance (16%). Moreover, [Figure 11](#) shows that the difference between estimated impacts is statistically different between the two groups at time $t=0$ and $t=3$ (the time of the

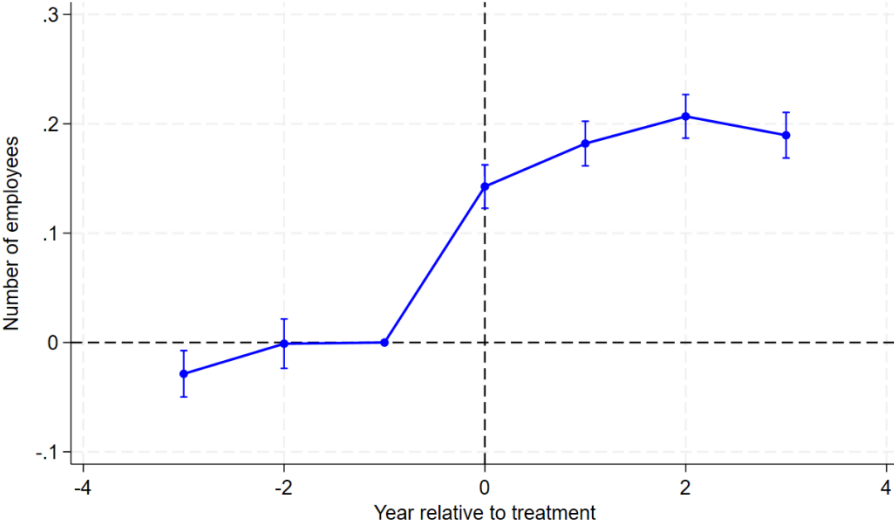
⁹ Specifically, 0.2 times the average total assets of EIB beneficiaries in the time before treatment (EUR 1.95 million) corresponds to an increase of approximately EUR 380,000. The average loan size reported in [Figure 7](#) is EUR 350,000.

¹⁰ The average number of employees in the year before receiving the loan is approximately 36, while the average loan size is EUR 350,000.

¹¹ This estimation was carried out by interacting the treatment dummy with an access to finance dummy.

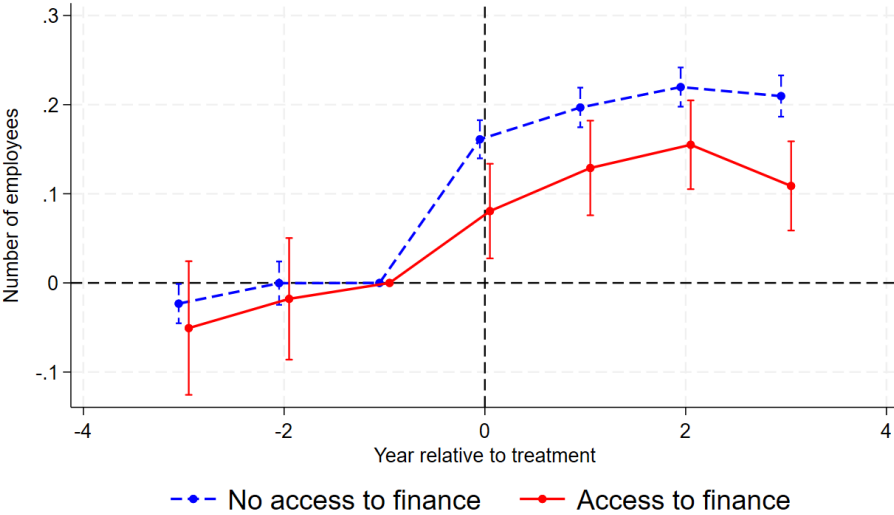
loan allocation and three years afterwards). These results show that EIB intermediated lending is also directed to firms for which a lack of access to finance is a real constraint to growth and that depend on external finance to raise employment. Additional evidence on firm locations shows that an increase in employment is primarily driven by firms located in Montenegro and Serbia (Figure 16 and Figure 17 in Annex 1).

Figure 10. EIB intermediated lending: Impact on number of employees



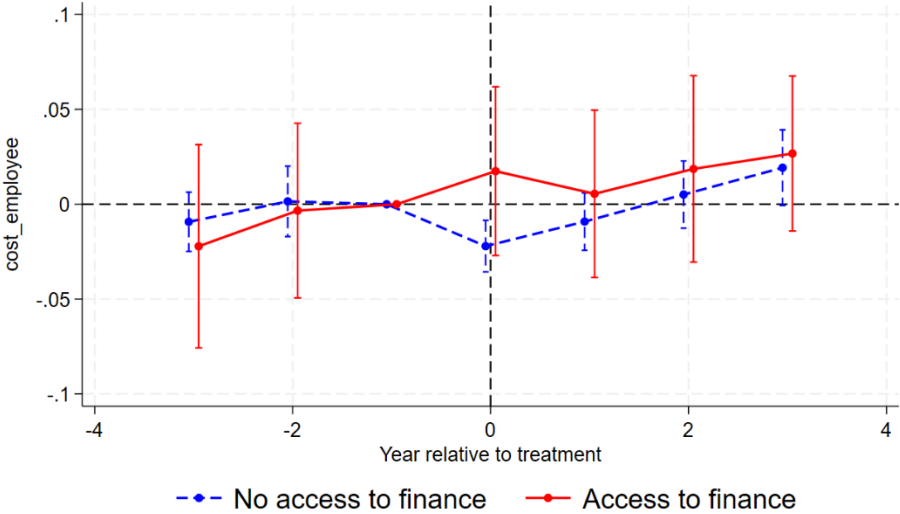
Source: EIB Economics Department estimations based on Bureau van Dijk’s Orbis database.
 Notes: The graph reports the effect of EIB intermediated loans on (log of) number of employees. Coefficients are normalised with respect to the year prior to loan allocation (t=-1) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows a 15% increase in number of employees on impact. This translates into 15 jobs supported per EUR 1 million allocated.

Figure 11. EIB intermediated lending: Impact on number of employees by access to finance



Source: EIB Economics Department estimations based on Bureau van Dijk’s Orbis database.
 Notes: The graph reports the effect of EIB intermediated loans on (log of) number of employees for two subsets of firms. These effects are obtained by interacting a dummy variable indicating firms with and without previous access to bank-lending finance. Coefficients are normalised with respect to the year prior to loan allocation (t=-1) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows a 15% increase in number of employees on impact. This translates into 15 jobs supported per EUR 1 million allocated.

Figure 12. EIB Intermediated lending: Impact on labour cost per employee by access to finance

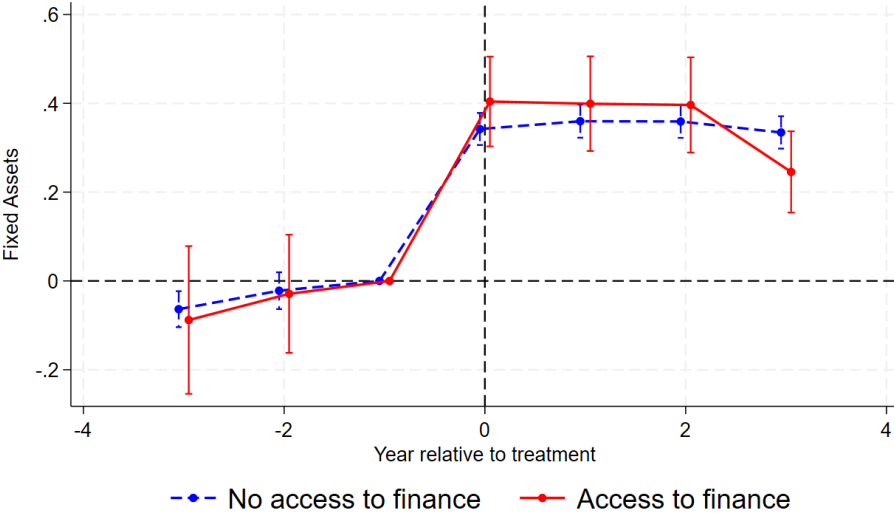


Source: EIB Economics Department estimations based on Bureau van Dijk’s Orbis database.
 Notes: The graph reports the effect of EIB intermediated loans on (log of) total labour cost per employee for two subset of firms. These effects are obtained by interacting a dummy variable indicating firms with and without previous access to bank-lending finance. Coefficients are normalised with respect to the year prior to loan allocation (t=-1) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows no increase in labour costs per employee.

Moreover, the subsequent increase in the number of employees does not raise labour costs. To assess the effect of higher labour demand on labour costs, the analysis considers the effect of loan signature on labour costs per employee, defined as the total cost of labour over the number of employees. [Figure 12](#) shows that costs per employee do not change on impact and only gradually increase in the years after treatment. The increase, however, is not statistically different from zero for either of the two groups (firms with previous access to finance and firms without previous access to finance). This shows that there is nothing more than a proportionate increase in labour costs for firms reporting an increase in employment.

Finally, EIB beneficiaries also report a 40% increase in fixed assets upon loan allocation. In addition to higher employment, EIB beneficiaries report investments in fixed assets as they get access to EIB intermediated lending. [Figure 13](#) shows the impact on firms’ fixed assets for the two sub-groups of firms (with and without previous access to finance). It shows a higher impact for firms with previous access to bank-lending finance, although the difference between the two sub-groups of firms is not statistically significant. Annex 3 reports the aggregated results of EIB impact on beneficiaries, from impact date and over the following three years.

Figure 13. EIB intermediated lending: Impact on fixed assets by access to finance



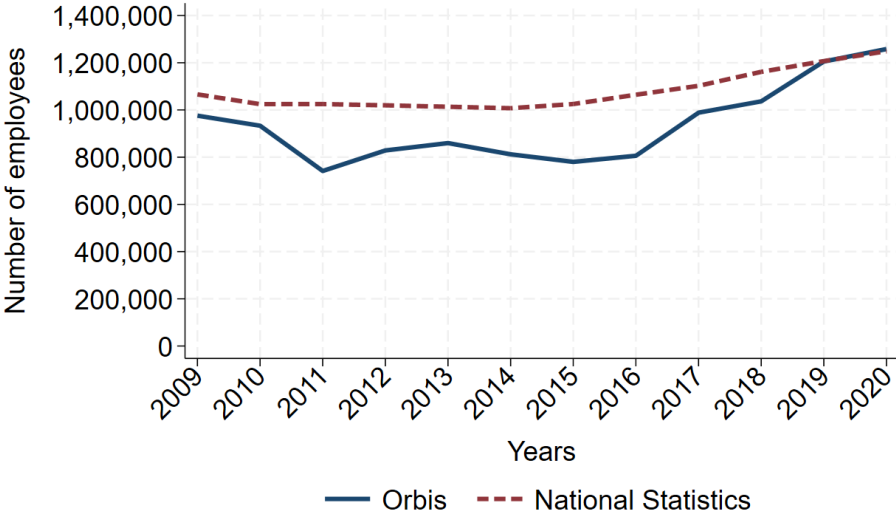
Source: EIB Economics Department estimations based on Bureau van Dijk’s Orbis database.
 Notes: The graph reports the effect of EIB intermediated loans on (log of) total fixed assets for two subset of firms. These effects are obtained by interacting a dummy variable indicating firms with and without previous access to bank-lending finance. Coefficients are normalised with respect to the year prior to loan allocation (t=-1) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows an average increase of 35% in fixed assets.

6 Conclusions

This report highlights the positive impact of EIB intermediated lending for SMEs in the Western Balkans, including increasing employment. Firms in the Western Balkans have limited access to finance, which forces them to rely on internal sources and limits their growth potential. EIB lending is significant for SME beneficiaries (accounting for about 8% of total assets in the year before they receive the loan), although these values vary by firm size and country. EIB loan allocations have a noticeable influence on economic activity in the countries of the SMEs receiving the lending, accounting for approximately 0.6% of Montenegrin GDP, for example. Intermediated lending has a positive impact on employment, as it creates 15 jobs for every EUR 1 million allocated, with even better results for firms that had no access to finance before receiving the EIB intermediated lending. In addition, EIB loans to SMEs enabled firms to increase their total assets substantially. The positive effect of EIB SME lending is greater than that seen in the European Union, and is more significant for Western Balkan recipients that have not accessed credit in the past. These results add to the evidence that lending to SMEs in markets where credit is constrained can provide an impulse for jobs and investment.

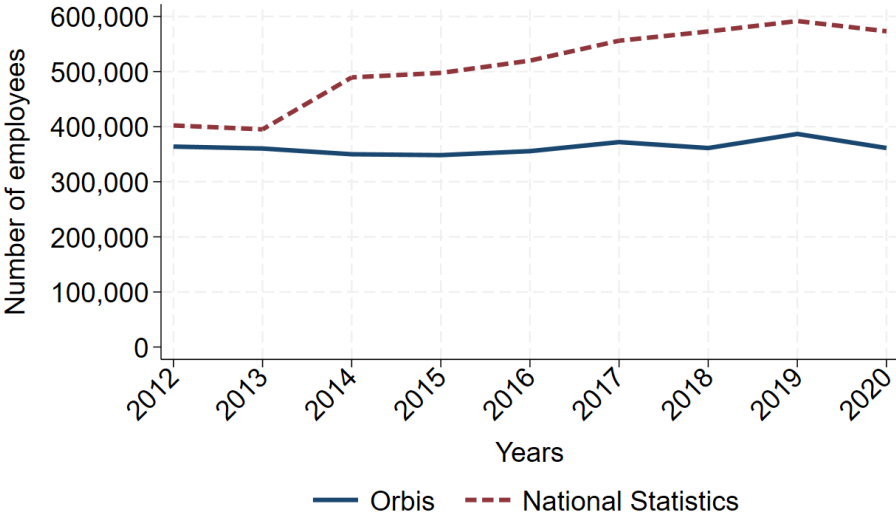
Annex 1: Data and additional charts

Figure 14. Total number of employees working in SMEs — Serbia



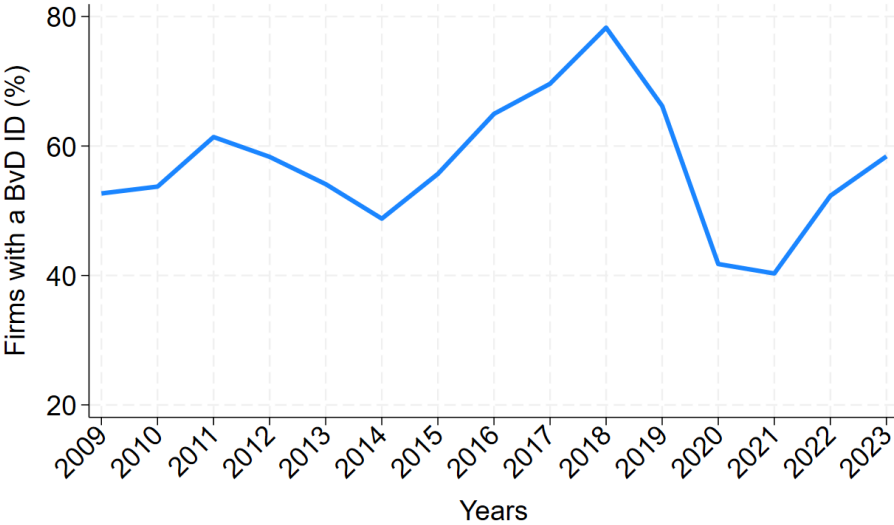
Notes: Number of employees in Orbis is computed as the sum of employees in all active firms. Number of firms in national statistics are from the Statistical Office of the Republic of Serbia. To ensure comparability, the following sectors have been included from Eurostat Statistical classification of economic activities in the European Community (NACE Rev. 2): NACE codes B-N without K and with S95.

Figure 15. Total number of employees working in SMEs — Bosnia and Herzegovina



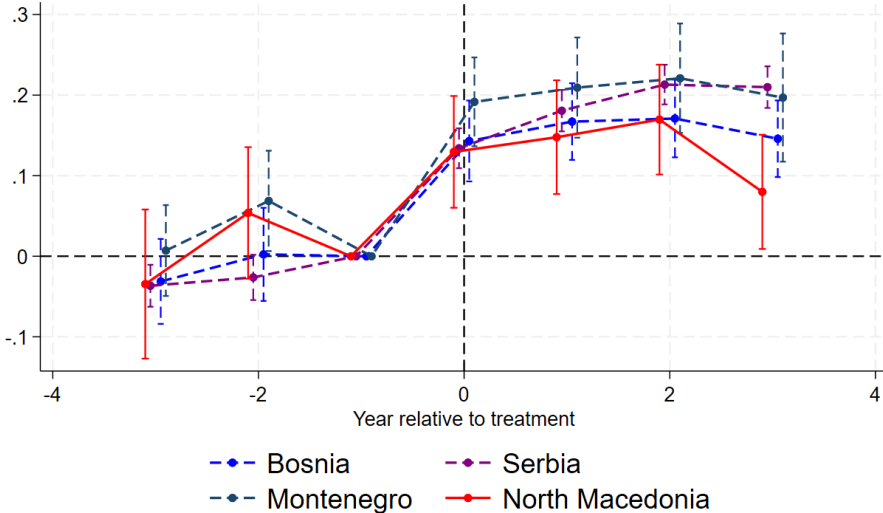
Notes: Number of employees in Orbis is computed as the sum of employees in all active firms. Number of firms in national statistics are from the Agency of Statistics of Bosnia and Herzegovina. To ensure comparability, the following sectors have been included from Eurostat Statistical classification of economic activities in the European Community (NACE Rev. 2): NACE codes B-N without K and with S95.

Figure 16. Share of beneficiaries with Orbis data over time



Notes: The graph reports the share of EIB beneficiaries for which it was possible to get an Orbis match. The matching between EIB beneficiaries and Orbis data was carried out based on beneficiaries' names. While the match improved until 2018, it declined in 2020 and 2021.

Figure 17. Impact on employment by country



Source: EIB Economics Department estimations based on Bureau van Dijk's Orbis database.
 Notes: The graph reports the effect of EIB intermediated loans on (log of) total number of employees for the four different countries. Coefficients are normalised with respect to the year prior to loan allocation (t=-1) and can be interpreted as the cumulative effect of the loan with respect to this baseline. The bands around the dots show the 95% confidence intervals of the estimates. The graph shows no increase in labour costs per employee.

Annex 2: Methodology

Unlike event studies built on standard two-way fixed effects (TWFE) models, which include dynamic terms of the treatment, the estimation method proposed in this analysis is robust to treatment effect heterogeneity. Estimation results report the interaction weighted (IW) estimator as in Sun and Abraham (2021), where firms are categorised into different cohorts based on their initial treatment timing.

The approach consists of three steps:

1. Firms are allocated to cohorts based on the time they are allocated an intermediated loan from the EIB. Cohort-specific average treatment effects are estimated using a linear TWFE specification that interacts relative period dummies with cohort dummies

$$y_{i,t} = \alpha_i + \lambda_t + \sum_{e \in C} \sum_{\{l \neq -1\}} \delta_{\{e,l\}} (\mathbf{1}\{E_i = e\} \times D_{i,t}^l) + \mathbf{X}_{it} + \epsilon_{i,t} \quad (eq.1)$$

where D_{it}^l is a dummy variable that equals 1 for firms being allocated a loan for l periods from year t . e represents a cohort, l is the relative time index and E_i is the time period of the initial treatment for unit i . Finally, the model also includes a set of firm control variables (\mathbf{X}_{it}), firm fixed effects (α_i) and time fixed effects (λ_t), while ϵ_{it} denotes the idiosyncratic errors.

2. Weights are computed for each relative time l using sample shares of each cohort

$$\Pr(E_i = e \mid E_i \in (-l, T - l)) \quad (eq.2)$$

3. Interaction-weighted estimator is obtained by interacting estimates from step 1 with weights computed in step 2

$$\hat{\nu}_g = \frac{1}{|g|} \sum_{l \in g} \sum_e \delta_{\{e,l\}} \Pr(E_i = e \mid E_i \in (-l, T - l)) \quad (eq.3)$$

Annex 3: Estimation results

Table 2. Event study — Aggregated estimates

	(1)	(2)	(3)	(4)
	Employment (log)	Total assets (log)	Labour cost per employee (log)	Fixed assets (log)
<i>Loan_{i,t}</i>	0.18*** (0.01)	0.20*** (0.01)	0.02*** (0.00)	0.35*** (0.02)
Fixed Effects:				
Firm	Yes	Yes	Yes	Yes
Time	Yes	Yes	Yes	Yes
Adj. R-squared	0.90	0.93	0.71	0.927
Observations	498,671	498,671	471,972	471,258

Notes: This table reports the interaction-weighted estimator as in Sun and Abraham (2021). The dependent variables are as follows: employment (natural logarithm of number of employees), total assets (natural logarithm of total assets (in millions of euros)), labour cost per employee (natural logarithm of the ratio between total cost of labour and number of employees (in millions of euros)) and fixed assets (natural logarithm of fixed assets in millions of euros). The main predictor is $Loan_{i,t}$, a binary variable for the allocation of an intermediated EIB loan to an SME. This dummy takes a value of zero before the loan is allocated and 1 from the time of the allocation onward. Obs. refers to the number of observations, Adj.R2 is the adjusted R2. Fixed effects are at the bank and year level. Standard errors are in parentheses, clustered at firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 3. Event study — Aggregated estimates and interaction

	(1)	(2)	(3)	(4)
	Employment (log)	Total assets (log)	Labour cost per employee (log)	Fixed assets (log)
<i>Loan_{i,t}</i>	0.20*** (0.01)	0.21*** (0.01)	-0.00 (0.01)	0.35*** (0.02)
<i>Loan_{i,t} × Access to Finance_i</i>	0.12*** (0.03)	0.19*** (0.03)	0.02 (0.02)	0.36*** (0.05)
Fixed Effects:				
Firm	Yes	Yes	Yes	Yes
Time	Yes	Yes	Yes	Yes
Adj. R-squared	0.90	0.93	0.53	0.89
Observations	498,671	498,671	471,972	471,258

Notes: This table reports the interaction-weighted estimator as in Sun and Abraham (2021). The dependent variables are as follows: employment (natural logarithm of number of employees), total assets (natural logarithm of total assets (in millions of euros)), labour cost per employee (natural logarithm of the ratio between total cost of labour and number of employees (in millions of euros)) and fixed assets (natural logarithm of fixed assets in millions of euros). The main predictors are $Loan_{i,t}$, a binary variable that takes a value of zero before the loan is allocated and 1 from the time of the allocation onward, and $Loan_{i,t} \times Access\ to\ Finance_i$, the interaction between $Loan_{i,t}$ and $Access\ to\ Finance_i$, a dummy variable that equals one if a firm has no access to finance in the period before being allocated an EIB allocated loan. Obs. refers to the number of observations, Adj.R2 is the adjusted R2. Fixed effects are at the bank and year level. Standard errors are in parentheses, clustered at firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

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The impact of the EIB's intermediated lending to businesses in the Western Balkans



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