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The European Small Business Finance Outlook 2023

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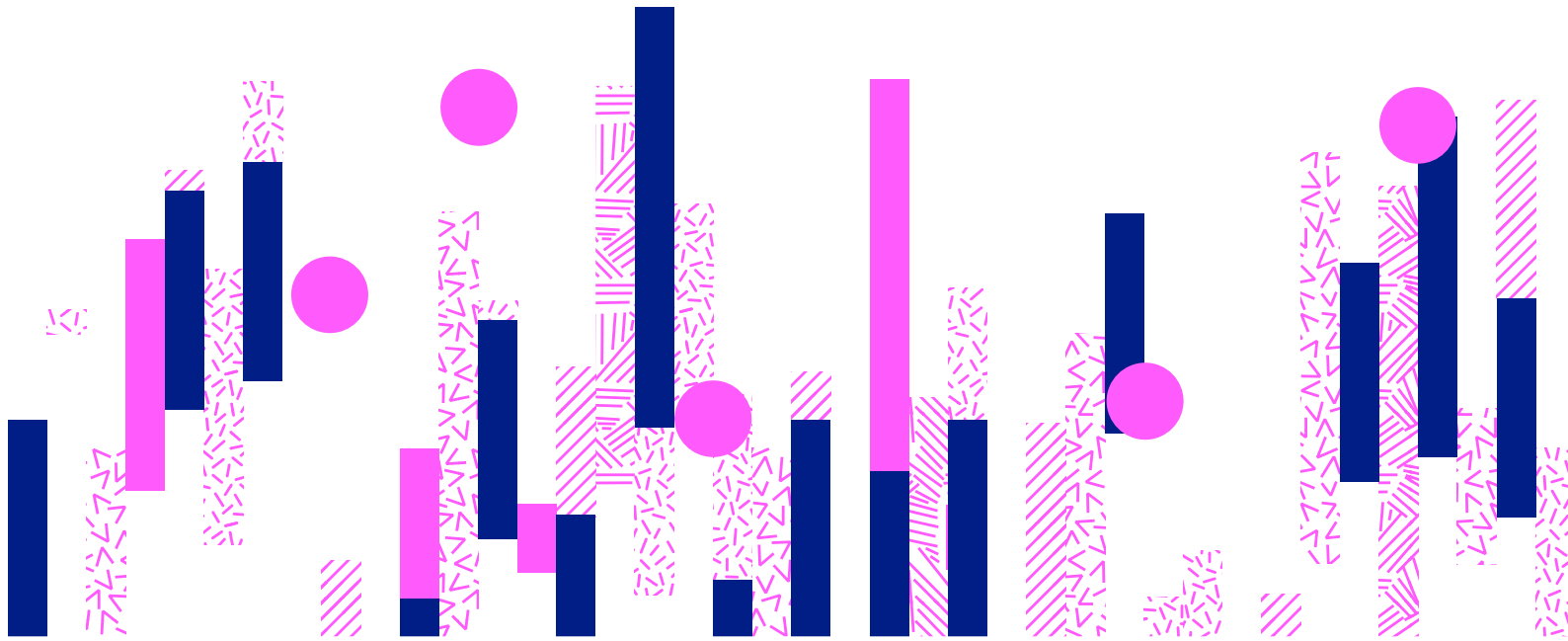
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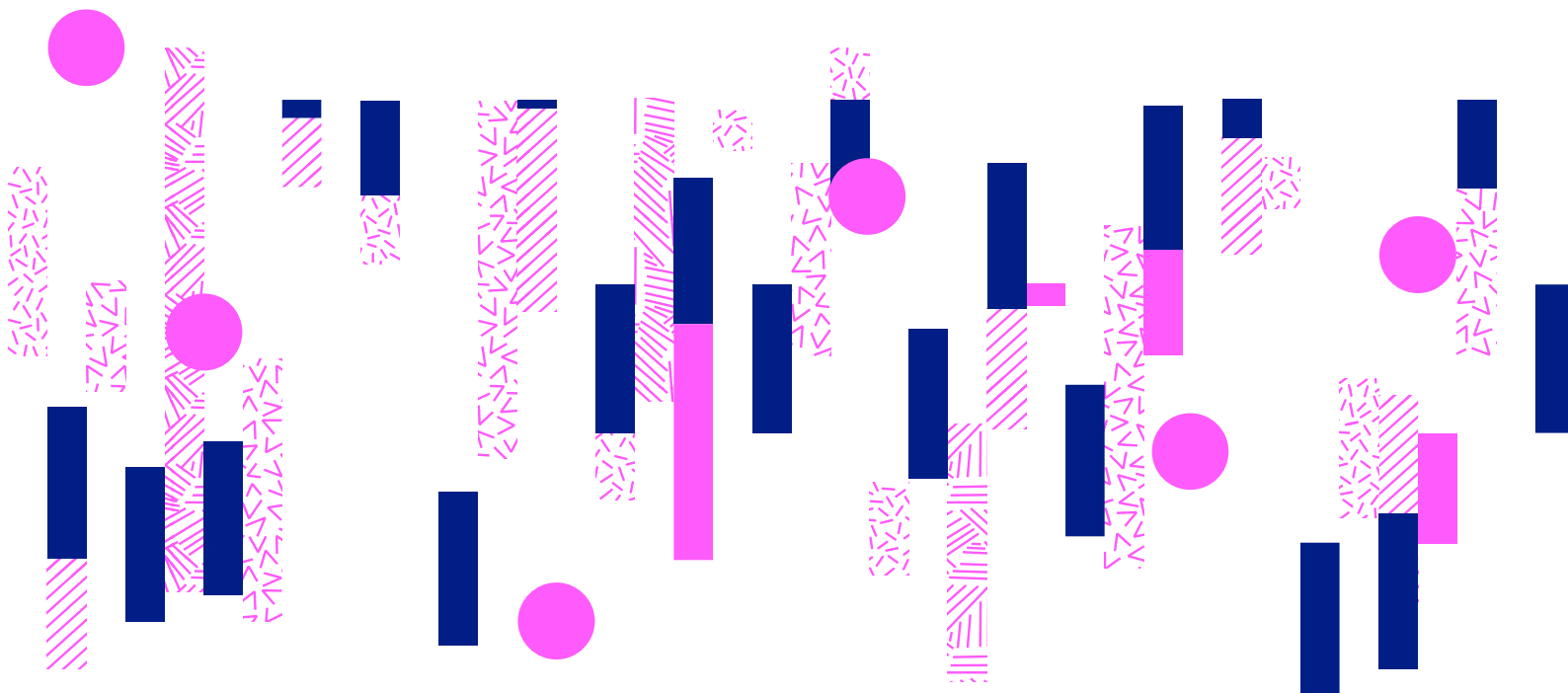
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The European Small Business Finance Outlook 2023

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Executive Summary¹

The European Small Business Finance Outlook (ESBFO) provides an overview of the main SME financing markets (Equity, Guarantees, Securitisation),² as well as some thematic areas (Inclusive finance, Fintechs, Green finance & investment) that are central to the European Investment Fund (EIF)'s mission as Europe's main public provider of financing solutions for SMEs and mid-caps. The current ESBFO publication constitutes an update of the November 2022 edition.

Economic outlook

- Since the publication of the previous edition of the ESBFO in November 2022, the outlook of the global economy has slightly worsened, as global growth is expected to remain sluggish.
- While the EU is managing the adverse shocks resulting from the pandemic and the war in Ukraine reasonably well, economic recovery has recently lost momentum and inflation remains a major concern.
- Corporate investment in the EU has yet to recover from the shock induced by the Covid-19 pandemic, as investment levels are still trending below pre-Covid levels.
- The expected rise in insolvencies caused by the strict lockdown measures introduced in response to the Covid pandemic might have finally started to materialise.

SME finance environment

- During the first semester of 2023, 24% of Euro area SMEs reportedly experienced severe access to finance issues, with the general economic outlook and lack of public support for external financing being listed as the most important drivers of financing hurdles.
- After a long period of either declining or stagnating interest rates, corporate borrowing costs have risen sharply over the past year, pushing the corporate borrowing cost indicator up to 4.99% by August 2023, a level not observed since 2008.
- On account of rising borrowing costs, corporate lending activity declined strongly throughout 2022 and 2023.

¹ This paper benefited from comments and inputs of many EIF colleagues, for which we are very grateful: Francesco Battazzi, Alicia Boudeau, Georgiana Buturoiu, José Cabrita, Jeoffray Cosson, Stephanie Descoubés, Daniela Francovicchio, Carsten Just, Paolo Magnani, Diego Sanchez, Priscilla Schnepfer, Simone Signore, Matteo Squilloni, Georgi Stoev and Arnaud Vanbellinghen. We would also like to thank colleagues from AECM, AFME, ECB, EMN, GEM and the Invest Europe research team for their support. All errors are of the authors.

² We are using the term "equity finance" to combine semantically the areas of Venture Capital and Private Equity. However, if we refer here to equity activities, we mainly consider those of EIF's investment focus, which excludes Leveraged Buyouts (LBOs) and Public Equity. The term SME Securitisation (SMESec) comprises transactions backed by SME loans, leases, etc. The reader is also referred to the respective market glossaries in Annex 1 and Annex 2 in Kraemer-Eis et al. (2017).

- Banks have considerably tightened SME credit standards over the first three quarters of 2023 although the rate at which they tightened decreased slightly in Q3/2023.

Private equity

- Over the past 25 years, the European private equity (PE) and venture capital (VC) activity exhibited booms and busts. The most famous peak periods were in 2000 and 2006. However, both booms were followed by significant downturns, i.e. the “dotcom crisis” in the early noughties and the financial and economic crisis from 2007 onwards. The severe crash of the European PE activity in 2008-2009 was followed by a rebound and PE fundraising and investments reached new record levels in 2019. In the Covid crisis, the market activity suffered only a temporary setback. The crisis was immediately followed by another record year in 2021. In 2022, however, PE/VC markets were hit by the combined effects of the Russian war of aggression against Ukraine, the subsequent geopolitical disruptions and the difficult macroeconomic environment.
- During the full year of 2022, the PE investments in portfolio companies based in Europe dropped by 11% to EUR 129.8bn. Investment declined in the buyout segment (–5% to EUR 80.7bn). Considerable decreases were also recorded for growth and replacement capital. VC investments, which are of particular importance for the financing of young innovative companies with high growth potential, dropped by 16% to EUR 18.2bn. Business Angel investments provided additional equity capital for ventures.
- Total amounts raised by PE funds in Europe increased by 30% to a new all-time high of EUR 170.3bn in 2022. At the same time, VC fundraising increased by 13% to EUR 23.0bn, which constitutes the biggest level ever. During and after the various European PE/VC market crises of the past 15 years, the European ecosystem benefitted substantially from market-stabilising public intervention. Since 2012, a normalisation set in, although public support still plays an important role for further market development.
- In 2022, the PE exit market suffered a setback. The substantial decrease in the total PE divestment amount (–27% to EUR 32.9bn) was mainly due to substantially lower activity in the buyout (–31% to EUR 22.5bn) segment of the market, but also divestments in the growth (–13% to EUR 7.2bn) and venture (–11% to EUR 2.7bn) capital segments decreased.
- EIF survey results indicate that the market sentiment deteriorated in 2023. *EIF VC Survey* respondents reported important challenges for their investees in 2023, particularly with regard to securing equity financing. At the fund level, alongside recurring challenges, respondents reported a very difficult exit environment and severe fundraising issues. Expectations for the coming months have become more optimistic.
- The favourable developments in the PE/VC market during recent years are currently becoming contested by risks related to the geopolitical, economic and monetary environment. Moreover, the European PE/VC ecosystem still experiences important structural weaknesses. This indicates the need for continuous analysis of the market needs and for a strong policy response in support of the European PE/VC markets and its final beneficiaries, the European enterprises.

SME guarantees

- Even though new dedicated programs were set up to support SMEs under strain in light of the negative macroeconomic and geopolitical developments caused by the Russian war against Ukraine, these interventions were overcompensated by the gradual phasing out of the extensive support programs that had been rolled out in response to the Covid-19 crisis.
- As a result, based on AECM data, the *total outstanding guarantee volume* decreased by more than 14% in 2022 compared to 2021, and by almost 20% compared to its all-time high in 2020.
- The *number of outstanding guarantees* also decreased in 2022, but this decrease was much less pronounced than the decrease in volumes and it set in only in 2022, whereas the volume of outstanding guarantees had already started to decrease in 2021.
- The year 2022 marked the reversal of an increasing trend regarding the *total number of supported SMEs*, which had been observed up until 2021.
- The *average size of outstanding guarantees* in portfolio continued its descent from the peak observed in 2020, but remained well above its pre-pandemic level.
- The *volume of newly-granted guarantees* in the full-year 2022 almost halved compared to 2021, and decreased by more than 80% relative to its 2020 crisis level; but remained well above its pre-pandemic level in 2019.
- The *ratio of new to outstanding guarantees* decreased substantially in 2022 (following the highest ever registered ratio in 2020), even below the pre-pandemic level.
- The increase in GDP as European economies recovered in 2021 and 2022, on the one hand, and the significant decrease in total outstanding as well as new guarantee volumes, on the other, meant that the *relative importance of guarantees* (both new and outstanding) over GDP decreased, but still exceeded the pre-pandemic levels.

SME Leasing

- Leasing is an important instrument to facilitate access to short- and medium-term financing for SMEs, ranked second after bank overdrafts, but still more popular than traditional bank loans.
- During the first semester of 2023, leasing was the financing source for which Euro area SMEs reported the most acute financing need. At the same time though, the availability of leasing has worsened, on balance, over the past six months, and its availability in the near future is also expected to deteriorate further – albeit to a lesser extent compared to other external financing sources.
- Finland, Germany and Austria are the countries with the highest proportion of SMEs using leasing, contrary to countries in the south of Europe.
- Leasing as a financing source is more prevalent among industrial and construction firms.
- The use of leasing grows with firm-size.

SME securitisation

- Overall, the SME securitisation (SMESec) market in Europe is underdeveloped and continues to remain subdued; it has potential to grow and help mitigate negative economic effects from recent crises (i.e. Covid-19, Russian war against Ukraine, Israel-Hamas conflict). Strengthening this market is an effective way to facilitate the flow of funds to the real economy, without creating distortions.
- Before the outbreak of Covid-19, SMESec issuance was still suffering from the after-effects of the financial crisis – and continued to suffer during the first year of the pandemic. In 2021 and 2022, visible SMESec issuance in Europe recovered to pre-pandemic levels. In 2022 (EUR 29.3bn) the volume was similar to 2021 (EUR 28.4bn), entirely driven by activity in Q4. 2023 started slowly, with no visible true sale issuance in HY1.
- Over the recent years there was a significant rise in number and volume of synthetic SMESec transactions, which are not visible in the official statistics (e.g. unrated bilateral transactions).
- The impact of the recent and ongoing economic crises on SMESec asset quality and deal performance remains to be seen, as well as the strength of structural protection and their ability to buffer adverse economic effects. Although the economic framework conditions worsened, SMESec market performance has been stable in the recent past and also appears currently to be in line with expectations.
- Many support measures are aiming at a market revival, amongst which are important regulatory adjustments. The market is now highly regulated; this results on the one hand in a high degree of transparency, but on the other hand in securitisation becoming unviable for many market actors. Several market participants call for a balanced review of the regulatory securitisation framework.
- Driven in particular by investors' demand but also by risk aspects, the perspective of "sustainability" is gaining importance in securitisation - and in structured finance in general (including the "use of proceeds" concept). The sustainable securitisation market is still in its early days but has the potential to play a significant role, in particular in the green transition. There seems to be substantial investors' interest, but the supply side is constrained. Moreover, the further development of the overall EU securitisation market is a necessary condition for the emergence of an EU sustainable securitisation market.
- The EU Green Bond Standard (GBS) Regulation was adopted by the European Parliament on 5 October 2023. To meet the EU GBS standard, proceeds of the bonds must be used for green purposes (as defined in the EU Taxonomy) and must be subject to a verification by a new type of regulated verification agent (to be regulated by ESMA). Also securitisations can be awarded EU GBS designation. This clarifies that a securitisation can be "green" irrespective of the "greenness" of the assets.

Inclusive Finance

- Microenterprises and social enterprises play a vital role in job creation and social innovation, particularly significant in European regions with high unemployment rates.
- Many small businesses are increasingly considering environmental and social impacts in their decision-making.

- Social enterprises are key players in tackling today's social and environmental issues but often struggle with limited public awareness and understanding, affecting their financial viability. Enhancing their recognition and increasing support are crucial for enabling their important contributions.
- Data from the latest ECB SAFE survey indicates a perceived increase in the external financing gap for microenterprises. Furthermore, a larger proportion of microenterprises, compared to larger firms, view access to finance as a principal challenge.
- Access to finance is essential not only for current microenterprises but also for those aiming to start businesses to escape poverty or unemployment. Beyond financial support, these aspiring entrepreneurs often need skill development through coaching and mentoring.
- Microenterprises are less likely to use bank loans than larger SMEs due to higher rejection rates, fear of rejection, stringent collateral requirements, high interest rates, and bureaucratic hurdles. Rejected or discouraged customers often turn to an alternative solution: microcredit from Microfinance institutions (MFI). MFIs do not always charge lower interest rates than banks, but they are less demanding in terms of collateral and guarantee requirement. In addition to financial products, a vast majority of MFIs also offer non-financial services.
- MFIs are actively pursuing green transformation, focusing on areas like renewable energy and sustainable agriculture. Challenges include limited client awareness about environmental issues and difficulty in adopting green technologies. They require support in the form of technical assistance, funding for green loans, and resources for non-financial services.
- MFIs are integrating digital capabilities to improve operations and client satisfaction. Key challenges include high investment costs and the need for technical expertise. Support needed encompasses funding for IT development, assistance in formulating digital strategies, and enhancing staff digital skills.
- Regarding overall support, MFIs' funding needs are centred on assisting vulnerable population segments, a key aspect of their mission. They primarily rely on borrowed funds to finance their loan portfolios and generally seek smaller amounts in equity. This financial backing, combined with technical assistance, is essential for MFIs to effectively reach and serve those most in need.

Fintechs

- Investments in European Fintechs companies have increased exponentially in recent years, but are expected to decline in 2023, as investments in late stage and PE growth stages receded.
- Recent Fintech deal activity was widespread across Europe, with numerous Fintech investees being funded in nearly every EU-27 country.
- Today, the EU Fintech sector stands at a pivotal juncture, balancing challenges and opportunities as it navigates changing economic conditions and regulatory landscapes.

Green finance & investment

- The latest IPCC report has once again called for comprehensive climate action, highlighting the critical role of investment in climate mitigation.
- More than half of EU SMEs reported climate change has already impacted their business.
- Investing in sustainable practices can positively influence the overall business performance of SMEs, affecting both the revenue generation and cost structure within a company's business model.
- Financial constraints and lack of access to external financing sources remain the most important financing obstacles for SMEs' sustainable investment activities.
- Greentech innovation is a key element of Europe's net-zero strategy. By lowering the cost of greenhouse gas abatement or pollution reduction, it can ensure the EU reaches climate neutrality in a cost-efficient manner.
- Funding volumes for EU Greentech companies have risen strongly in recent years. While funding volumes are likely to decline slightly during 2023, the EU Greentech market shows remarkable resilience in the current challenging macroeconomic environment.
- Over the past five years, growth on the European Greentech market has consistently outpaced growth on the general PE/VC market.
- Average deal size on the EU Greentech market has risen exponentially since 2017, as increased policy focus on sustainability and higher consumer demand for green technology have led scalable solutions to be more widely deployed.
- Northern and Western European countries, including Sweden, Denmark, the Netherlands, and Germany, traditionally considered as important European VC hubs, have established themselves as leaders in Greentech innovation.
- EU Greentech companies are specialised in a variety of different application fields. Initially dominated by investments in companies focussing on developing energy solutions, the EU Greentech ecosystem has become increasingly diversified in recent years, with a heightened focus on mobility solutions and emerging fields.

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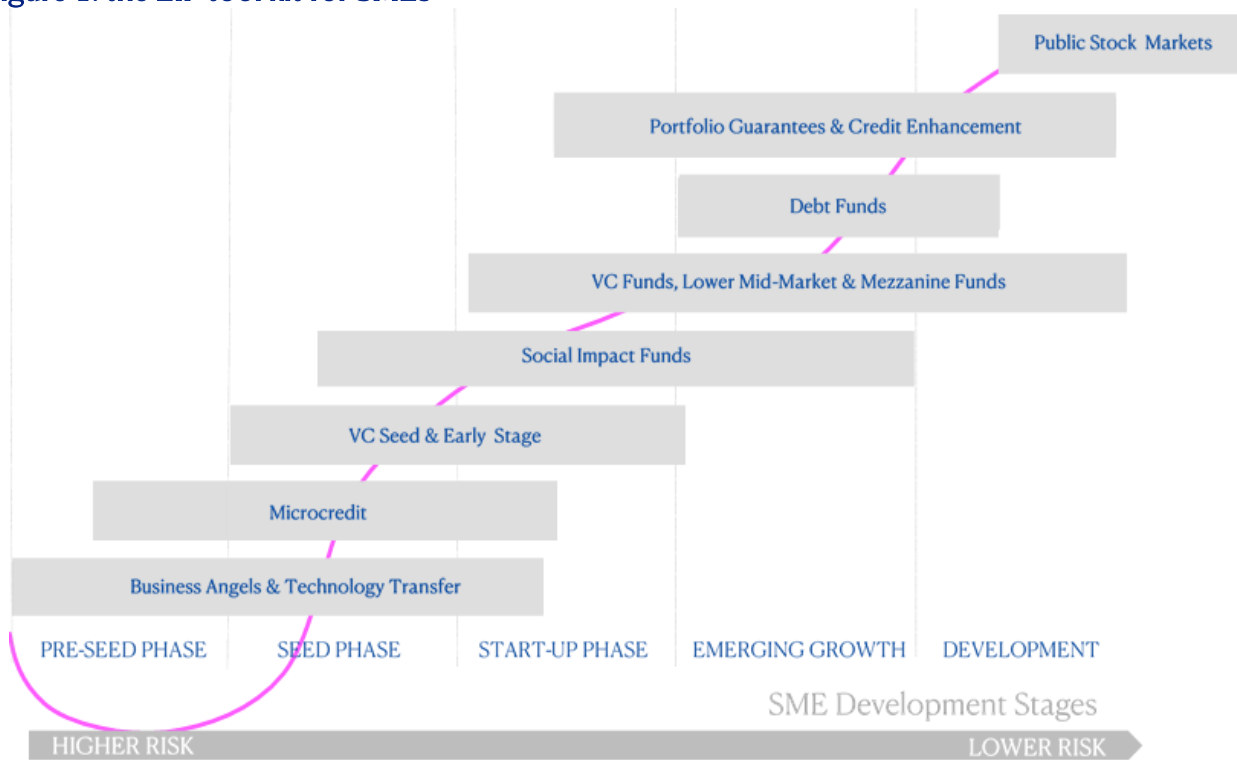
1 | Introduction

1.1 | The European Investment Fund

This European Small Business Finance Outlook (ESBFO) provides an overview of the main SME financing markets (Equity, Guarantees, Securitisation), as well as a number of thematic areas (Inclusive finance, Fintechs, Green finance & investment) that are central to the European Investment Fund (EIF)’s mission.

The EIF is the European Investment Bank (EIB) Group’s specialist provider of risk financing for entrepreneurship and innovation across Europe. It focuses on the whole range of small and medium-sized enterprises (SMEs), starting from the pre-seed, seed-, and start-up-phase (technology transfer, business angel financing, microfinance and early stage VC) up to the growth and development stage (formal VC funds, mezzanine funds, debt funds, and portfolio guarantees/credit enhancement, Figure 1). It delivers the full spectrum of financing solutions (equity instruments, guarantee and credit enhancement instruments, as well as microfinance) through financial intermediaries.

Figure 1: the EIF tool kit for SMEs



By supporting entrepreneurship throughout Europe, the EIF contributes to the European Union’s (EU) thematic priorities, by promoting innovation, fostering inclusive growth, enhancing SME digitalisation and helping Europe to achieve the environmental targets of the EU Green Deal.⁵

1.2 | SMEs in Europe

SMEs,⁴ the primary target group of EIF’s activities, are firms that employ fewer than 250 workers and have an annual turnover below EUR 50m or a balance sheet total below EUR 43m (Table 1).

Table 1: EU definition of SMEs*

	Employees	Turnover	Balance sheet total
Micro	<10	≤ EUR 2m	≤ EUR 2m
Small	<50	≤ EUR 10m	≤ EUR 10m
Medium	<250	≤ EUR 50m	≤ EUR 43m

*Within the category of non-SMEs, it is possible to distinguish between mid-caps and large corporates, the former being defined as enterprises that employ no more than 2,999 employees, with an additional distinction of small mid-caps, employing no more than 500 employees.

Source: European Commission (2023a)

Accounting for 99.8% of all non-financial enterprises in Europe, SMEs contribute significantly to European job creation and economic growth (Figure 2, panel a). In 2022, 24.3 million European SMEs employed around 84.9 million workers (64.4% of total employment) and generated 51.8% of European value added (EUR 3,947bn). SMEs’ employment and value added shares have fallen since 2010 and most recent data suggests this declining trend is set to continue (Figure 2, panel b).⁵ In particular SMEs relative contribution to EU value added has decreased strongly in recent years, declining by more than a percentage point since 2019.

The relative importance of SMEs in national production and employment varies substantially between EU Member States (Figure 2, panel c). For example, Greek SMEs, employing more than 80% of the total workforce, contribute significantly more to aggregate employment than French SMEs, who only employ about half of the French workforce. Differences in the relative contribution of SMEs to national economies can reflect differences in national sectoral structures, as firm-size distribution differs widely across sectors (Figure 2, panel d). In particular for service sectors, SMEs are important job creators, with employment shares well above 80% in high-skilled services, the hospitality sector, construction and real estate.

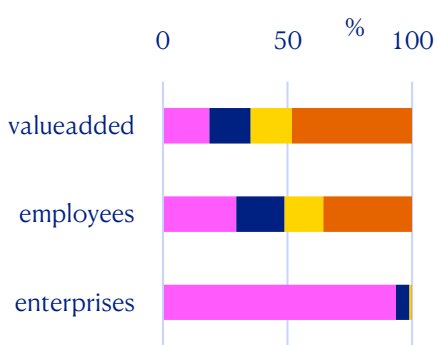
³ For more information on the European Investment Fund and its mission, see www.eif.org.

⁴ As defined by the European Commission (Commission Recommendation 2003/361/CE of 6 May 2003).

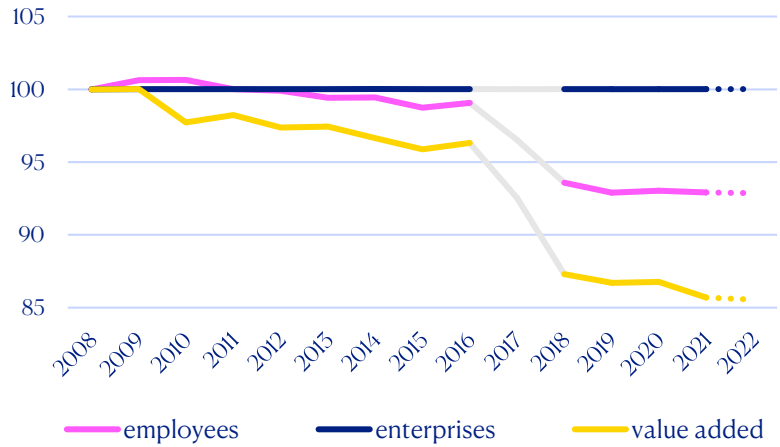
⁵ Not accounting for the stark drop in measured shares driven by a change in the definition of what constitutes a corporate entity, which was implemented throughout the EU Member States between 2017 and 2018.

Figure 2: SME employment and value added shares in the EU (2022)*

a) relative contribution by size class



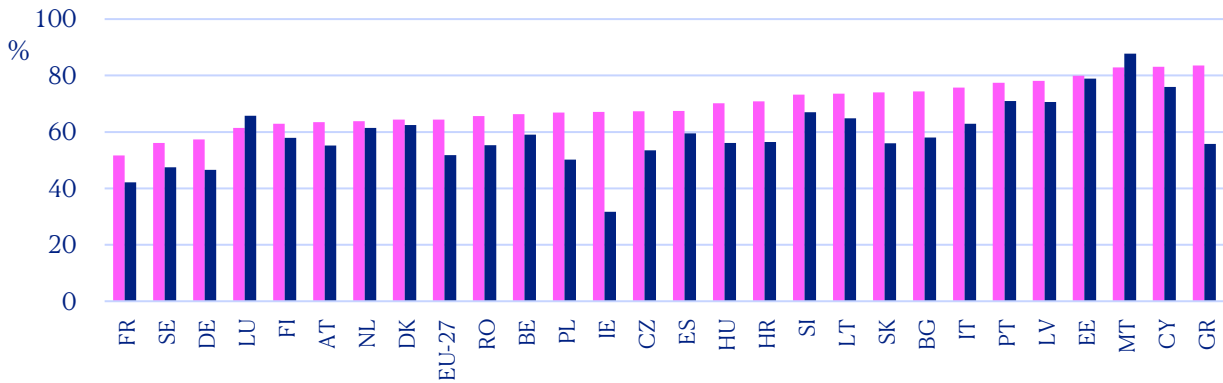
b) evolution of relative contributions (2008=100)**



Micro Small Medium Large

employees enterprises value added

c) by country



d) by sector



Employees Value added

* Excluding financial services sectors.

** The decline of employment and value added shares during 2017 and 2018 (grey lines) is driven by a structural break in the data, caused by a gradual switch from legal to statistical units as a proxy for an enterprise. Post-2021 data are estimated values.

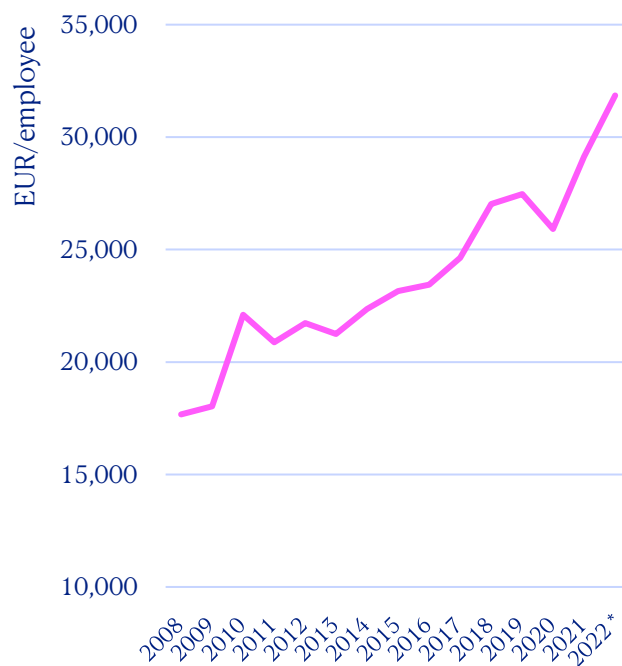
*** NACE section M: Professional, scientific, and technical activities.

While sectoral composition accounts for a significant part of the observed country differences, cross-country heterogeneity in employment shares also exists within a given sector (see SME share matrices depicted in Annex 1). Hence, country-idiosyncratic elements, such as cultural attitudes towards entrepreneurship, legal frameworks, or other institutional differences, are also likely determinants of the relative contribution of SMEs to a country’s economic structure.

SMEs generally exhibit lower labour productivity compared to large firms, as SME contribution to value added generally undercuts their employment contribution. The firm-size labour productivity gap in the EU, defined as the difference in value added per employee between SMEs and large firms, is substantial and has increased significantly over time (Figure 3).

The productivity gap is particularly pronounced in the cases of Ireland and Greece. For Ireland, the relatively limited value added contribution of SMEs manifests itself mostly in the industrial sector, and to a lesser extent in high-skilled services and ICT. One explanatory factor is the presence of highly productive, large, multinational corporations on Irish territory (OECD, 2019). For Greece, the relatively small value added contribution of SMEs is common across sectors. This indicates that cultural or institutional factors could play a role in explaining the specificities of its firm-size distribution.⁶

Figure 3: Firm-size labour productivity gap* (EU-27)



* Defined as the difference between Euro value added per person of large firms and SMEs.

Source: European Commission (2023a), authors’ calculations

Regardless of the cross-sector and cross-country diversity in SMEs’ relative importance, their sizeable contribution to value added and employment underscore the essential role they play in the EU economy. Unfortunately, due to their nature, SMEs often encounter challenges in accessing finance. Therefore, this publication aims to inform policy makers, professionals and academics on recent trends on SME external financing markets, in order to foster an informed public debate on SME financing, to the benefit of European SMEs.

⁶ See Annex 1 for a complete country-level overview of employment and value added shares within the EU-27.

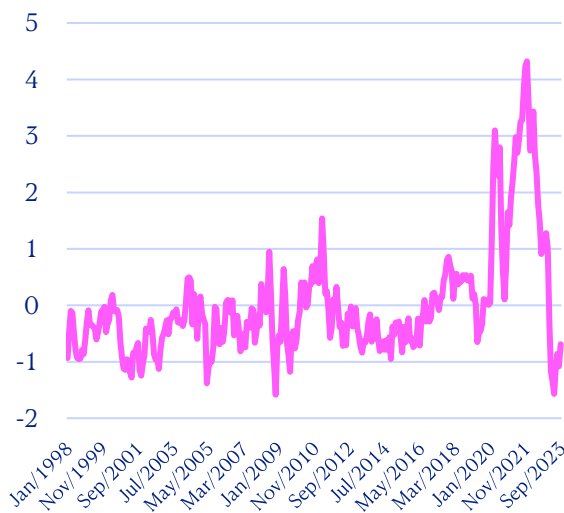
The remainder of this publication is structured around the financing instruments and thematic areas that make up EIF's most important target markets. Chapter 2 | and 3 | prelude instrument-specific analyses by providing a discussion of the current economic outlook and an overview of the recent SME business environment. Chapters 4 | and 5 | discuss recent trends on European private equity, guarantee, leasing and securitisation markets. Chapters 6 |, 7 | and 8 | provide an overview of some thematic areas that are central to EIF's public mission, such as inclusive finance, Fintech and green finance & investment.

2 | Economic outlook

Global outlook

Since the publication of the previous edition of the ESBFO in November 2022, the outlook of the global economy has slightly worsened. Global growth is expected to remain sluggish, slowing down from 3.5 percent in 2022 to 3% in 2023, well below the global growth average observed during the first two decades of this century. Supply chain disruptions have been resolved⁷ (Figure

Figure 4: Global supply chain disruption index



Source: Federal reserve bank of New York

4) and energy prices have normalised, but inflation is still troubling global markets. While headline inflation has decreased substantially, driven by the normalisation of energy prices and a tightening of monetary policy by central banks worldwide, core inflation is projected to decline more gradually, a dynamic likely to be driven by changes in agents' near-term inflation expectations (IMF, 2022a).

European outlook

While the EU is managing the adverse shocks resulting from the pandemic and the war in Ukraine reasonably well, economic recovery has lost momentum. During the final quarter of

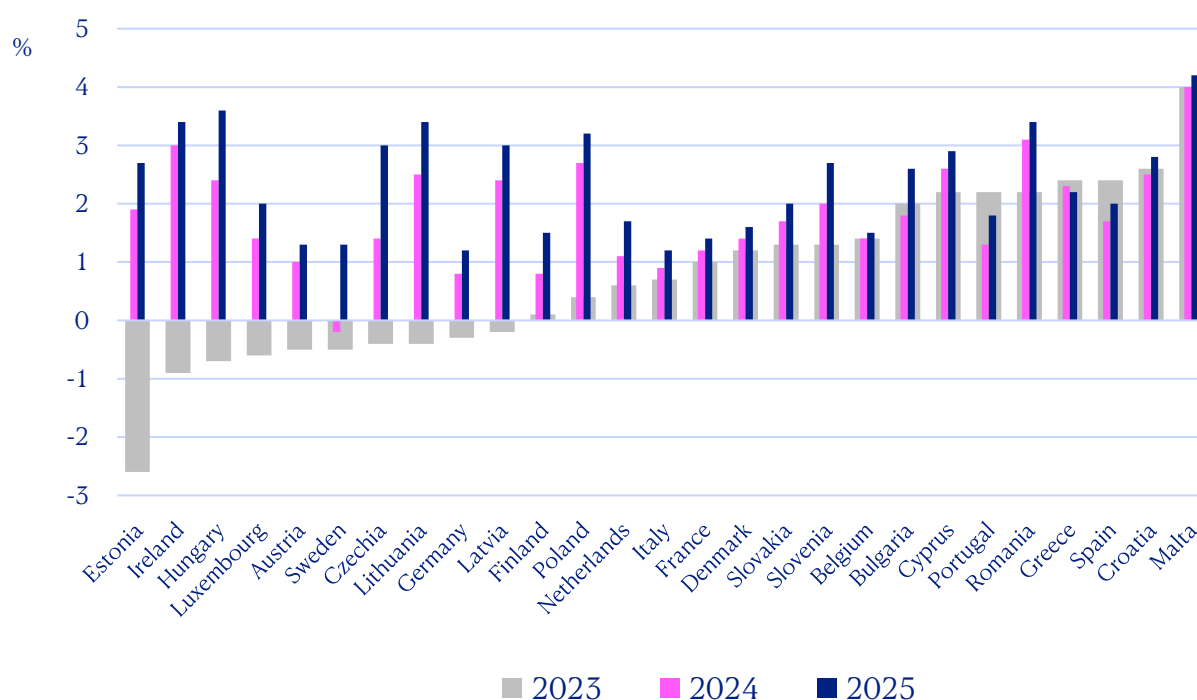
2022 the EU economy even contracted slightly and the European Commission's growth forecasts for 2023 are set to 0.6%, a downward revision of 0.2 percentage points compared to the previous summer estimates (European Commission, 2023b). The deterioration in the economic outlook was driven by subdued internal and external demand, as the high cost of living significantly impacted consumer spending and economic activity and global trade has faltered (European Commission, 2023b). Several EU-27 economies were in or near recession during 2023, which is expected to result in 10 countries with negative real GDP growth over the full year 2023 (Figure 5). While growth is expected to pick up again in 2024 to 1.3%, it is still well below potential output (European Commission, 2023b).

⁷ "The GSCPI integrates a number of commonly used metrics with the aim of providing a comprehensive summary of potential supply chain disruptions. Global transportation costs are measured by employing data from the [Baltic Dry Index \(BDI\)](#) and the [Harpex index](#), as well as air freight cost indices from the [U.S. Bureau of Labor Statistics](#). The GSCPI also uses several supply chain-related components from [Purchasing Managers' Index \(PMI\) surveys](#), focusing on manufacturing firms across seven interconnected economies: China, the Euro area, Japan, South Korea, Taiwan, the United Kingdom, and the United States." (New York Federal Reserve, 2022)

Table 2: European Commission EU Autumn 2023 forecast

(Real annual percentage change, unless otherwise stated)				Forecasts		
	2020	2021	2022	2023	2024	2025
GDP growth	-5.6	6	3.4	0.6	1.3	1.7
Inflation	0.7	2.9	9.2	6.5	3.5	2.4
Unemployment rate (%)	7.2	7.1	6.2	6	6	5.9
Total investment	-5.4	3.8	2.9	1.2	1.5	2.3
<i>Equipment investment</i>	-10.9	7.7	4.2	4	3	2.9
<i>Construction investment</i>	-3.2	5.8	1.8	-0.8	-0.1	1.8
Public Investment (% of GDP)	3.3	3.2	3.2	3.3	3.4	3.5

Source: European Commission (2023b)

Figure 5: Country-level real GDP growth forecasts


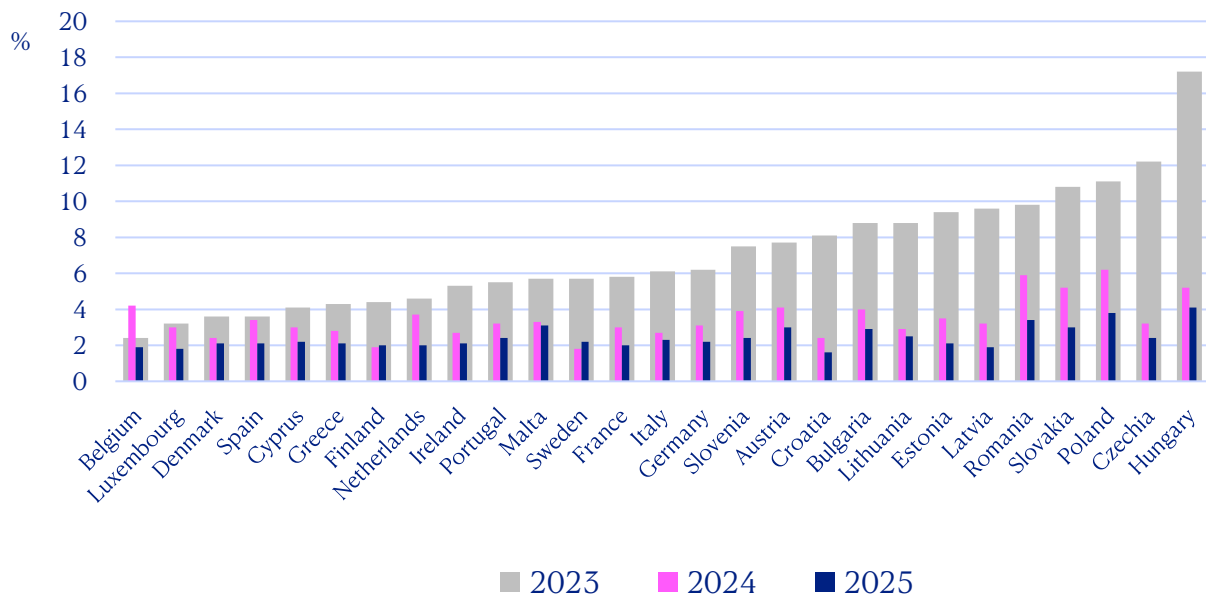
Source: European Commission (2023b)

Inflation remains a major concern for the EU economy. For 2023, the HICP is estimated at 6.5%. Projections show a gradual decrease in inflation to 3.5% by 2024 and 2.4% by 2025, still slightly above the ECB's 2%-target. The decline in inflation set through in all sectors, reflecting the impact of lower energy prices, the waning of pandemic supply shocks and the negative effect of tightened monetary policy on consumer demand (European Commission, 2023b).

For 2023, inflation was particularly pronounced in Eastern European countries, with Hungary as a prominent outlier (17%). While inflation was lowest in Belgium and Luxembourg, these are,

together with Spain, the only countries where inflation is not expected to decline significantly in 2024. The distinct inflation path of these countries is likely driven by their wage-setting arrangements,⁸ which delay the impact of second-round wage-price effects by adjusting wages only after inflation has materialised, rather adjusting it a priori to expected inflation. In all other countries, the projections foresee a considerable moderation in the rate of price increases (Figure 6).

Figure 6: Country-level inflation forecasts



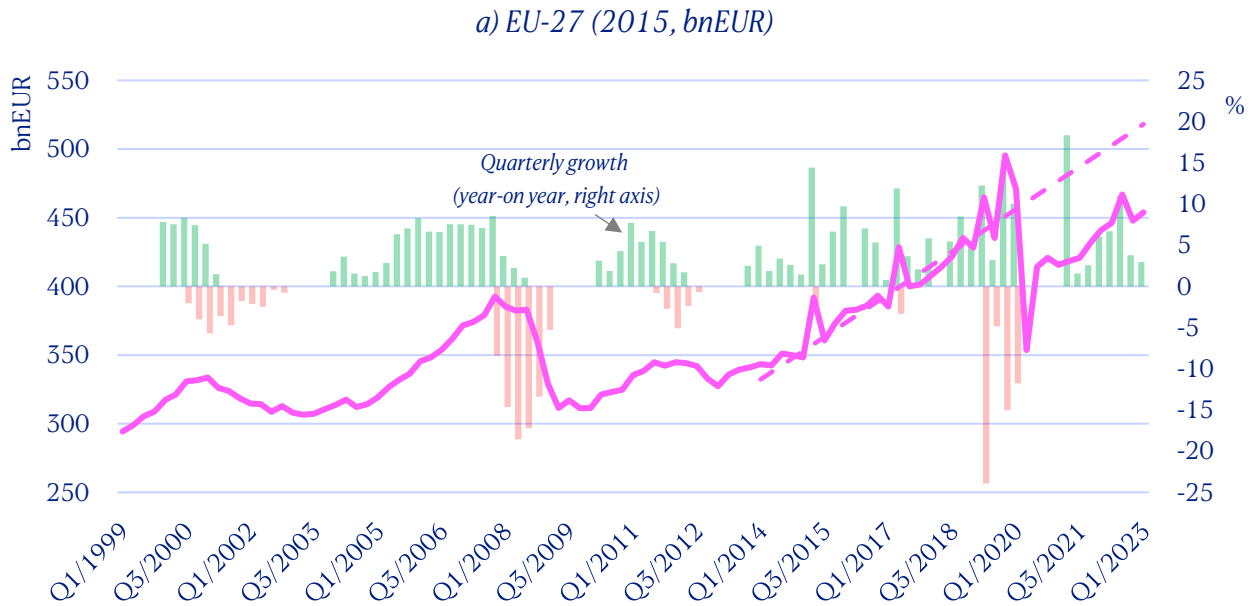
Source: European Commission (2023b)

The labour market exhibited notable resilience, as the EU unemployment rate dropped to a record low of 6% in the second quarter of 2023, maintaining a strong performance amidst challenging economic conditions. Despite a slight reduction from late 2022 peaks, vacancy rates and labour shortages continued to be at historically high levels, providing an additional indication that a reversal of the ECB’s monetary policy stance is not imminent. Employment rates for women have risen robustly, leading to the smallest employment gender gap since the start of data collection in 2009 (European Commission, 2023b).

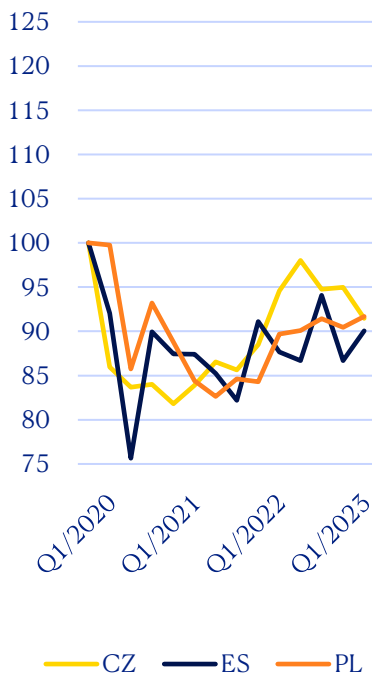
Corporate investment in the EU has not yet recovered from the shock induced by the Covid-19 pandemic (Figure 7). After retracting by nearly 30% during the first semester of 2020, investment was slow to recover, bouncing back only partially to settle on a lower trend path compared to the pre-Covid era. After increasing for 8 consecutive quarters, corporate investment retracted again during the final quarter of 2022, likely on account of tightened financial conditions.

⁸ Belgium, Luxembourg, and Spain have automatic wage indexation systems, with relatively wide coverage of the private sector.

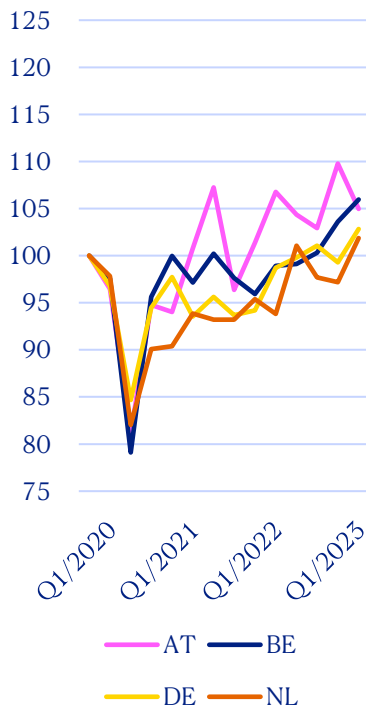
Figure 7: Corporate investment (non-financial corporations)



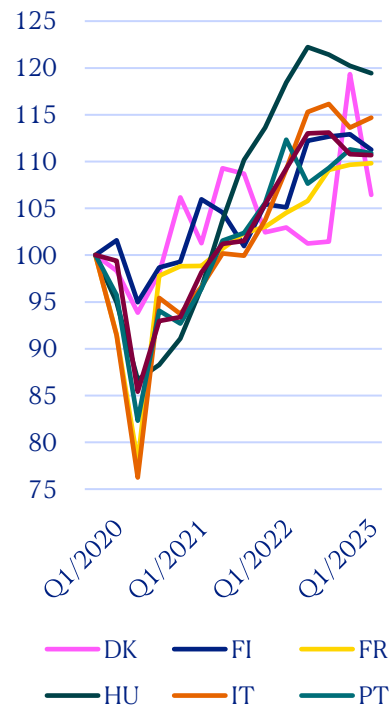
b) Recovering countries
(Q4/2019=100)**



b) Recovered countries
(Q4/2019=100)**



b) Performing countries
(Q4/2019=100)**



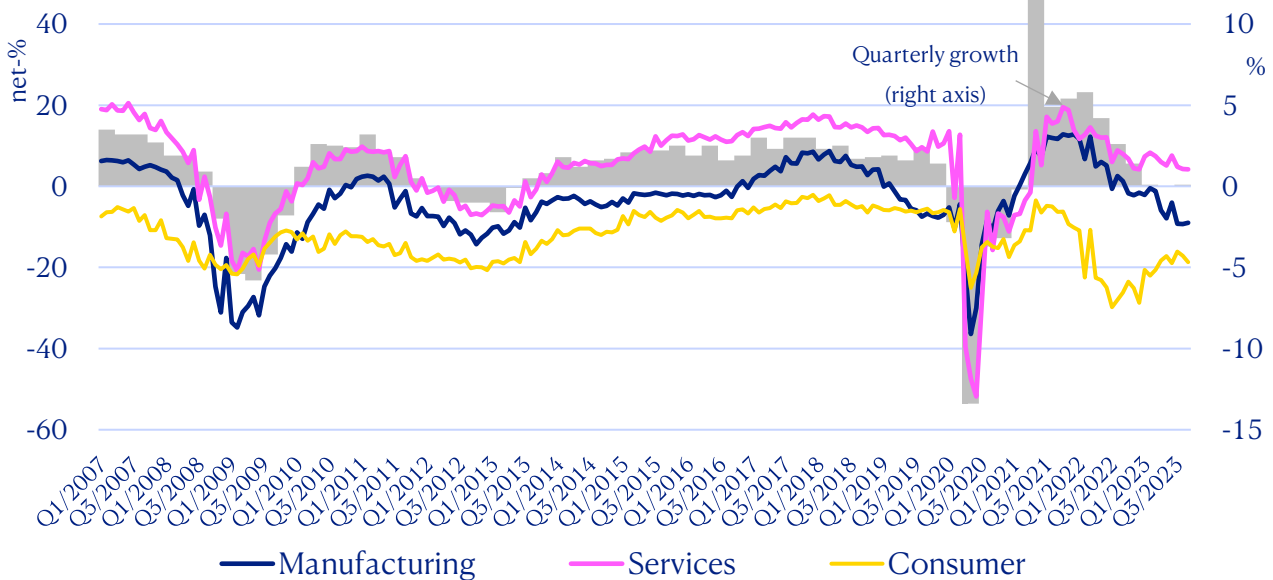
* Corporate investment is measured as gross fixed capital formation by non-financial corporations, seasonally adjusted series, price adjusted using 2015 GDP deflators.

** Index values of 4-quarter backward moving average

Economic sentiment indicators

In recent months, the European Commission’s confidence indicators reveal a mixed picture, with sentiment trends diverging between the demand and supply side of the economy (Figure 8). Consumer confidence reached a record low during the first quarter of 2023, after which it started to increase again on account of moderating inflationary pressures. Consumer confidence remains relatively low by historic standards, matching the levels observed in the immediate aftermath of the financial crisis. Contrary to consumer confidence, sentiment among industrial and service sector companies has continued to decline, with industrial confidence dipping into negative territory from Q1/2023 onwards, consistent with recent evolution in macro-economic conditions and the ongoing geopolitical uncertainty.

Figure 8: EU-27 Economic confidence indicators and quarterly GDP growth*



* Growth numbers refer to year-on-year growth vis-à-vis the same quarter one year earlier. Q4/2022 and Q3/2022 GDP growth are forecasted values based on European Commission (2023b). Confidence indicators are survey-based measures constructed for each surveyed sector, and are calculated as arithmetic means of answers (seasonally adjusted balances) to a selection of questions closely related to the reference variable they are supposed to track (e.g. industrial production for the industrial confidence indicator).

Source: Eurostat, European Commission (2023b), authors’ calculations

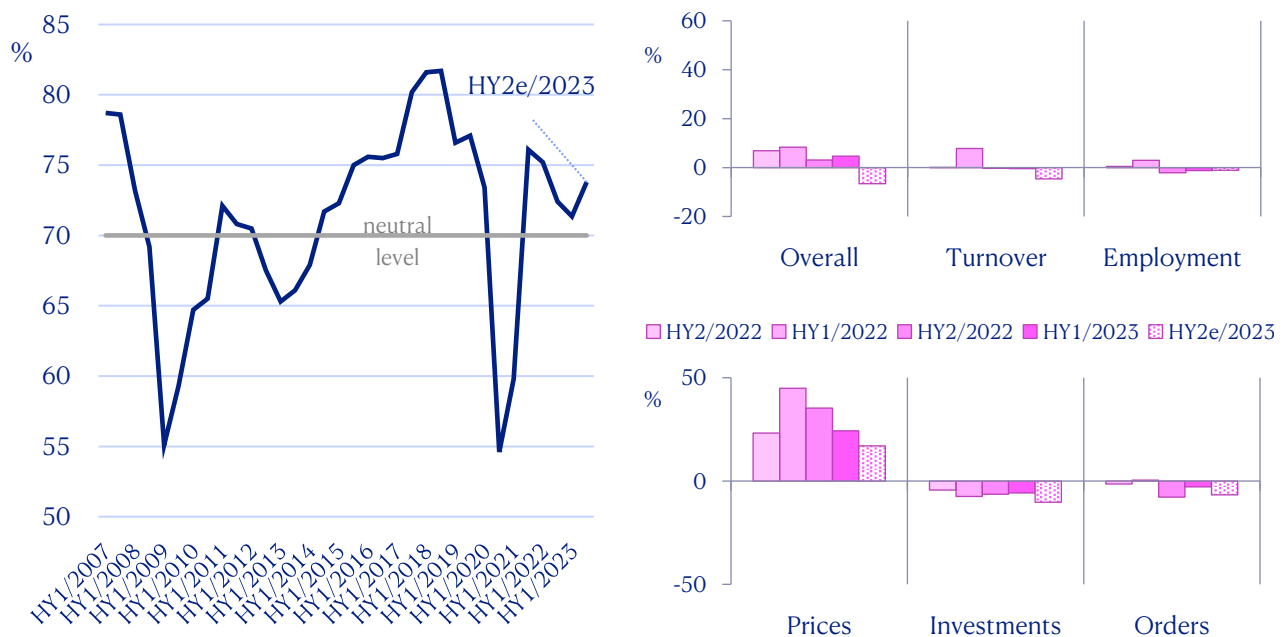
SME business owner sentiment declined for the third consecutive semester during the first half of 2023, after having recovered strongly from the Covid-crisis during 2021 (Figure 9, left panel).⁹ SMEs’ business sentiment appears strongly connected to inflation evolution, with sentiment in low inflation countries significantly exceeding the level observed in high inflation countries, paralleling the drivers for consumer sentiment, which appeared to be strongly correlated with inflation as well. Regardless of the recent decline, sentiment remains relatively positive (exceeding the 70-point neutral level), implying SMEs business owners do not anticipate an

⁹ The EU craft and SME barometer is calculated as the average of companies that have reported positive or stable business situations and expect a positive or stable development for the next period. Therefore, the index can range from 100 (all positive or neutral) to 0 (all negative), see SMEunited (2023) for an elaborate description of the index.

imminent recession. Furthermore, the sentiment indicators suggest they expect the economic situation to improve during the second half of 2023, in accordance with the downward trend in inflation (SMEunited, 2023).

The drivers of SME business sentiment indeed reveal SMEs are expecting price levels to further stabilise during the second semester of 2023 (Figure 9, right panel). Inflation expectations come out as the only positive driver of near-term business sentiment. Investments, orders and the overall situation were all reported as negative contributors, consistent with the rise in financing costs, declining consumer demand and the ongoing geopolitical uncertainty.

Figure 9: SME Business Climate Index and the EU Craft and SME barometer HY1/2023

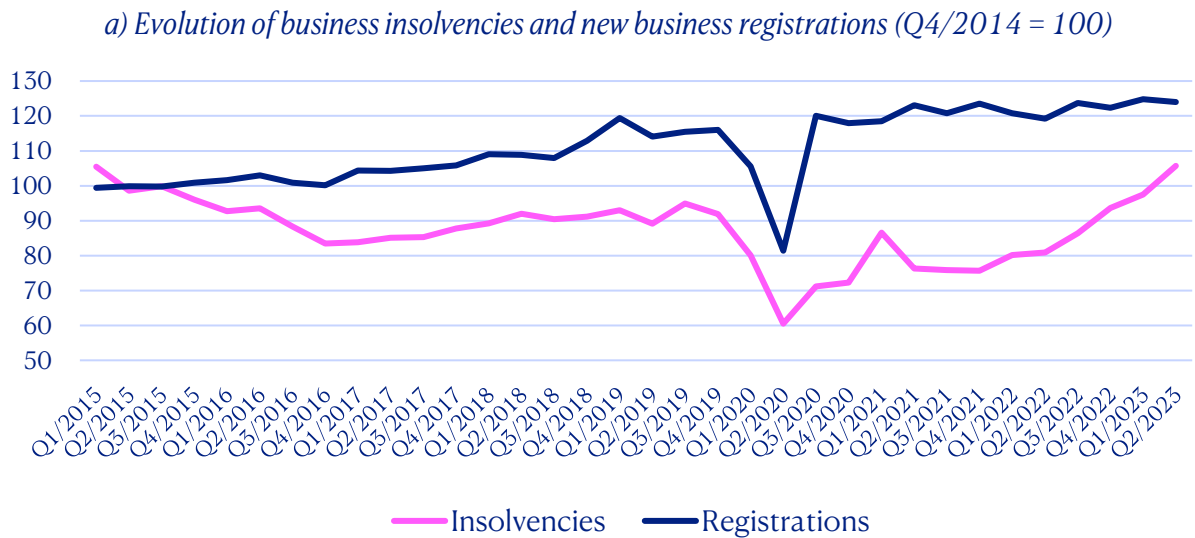


Source: SMEunited (2023)

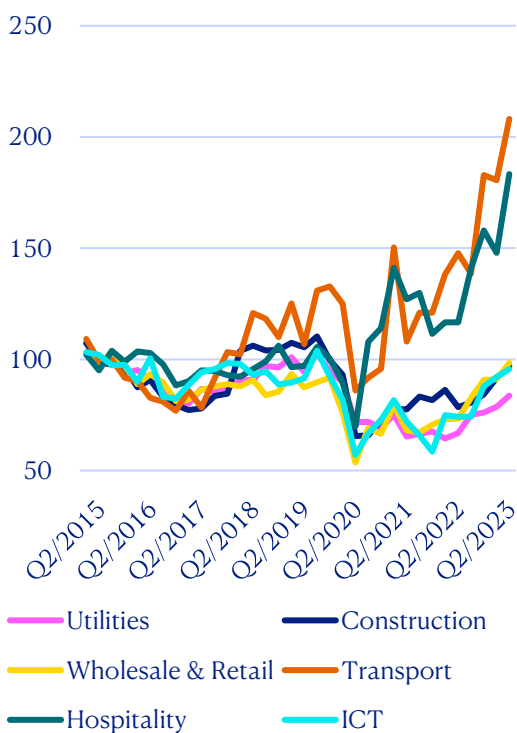
Insolvencies

The expected rise in insolvencies caused by the strict lockdown measures introduced in response to the Covid pandemic might have finally started to materialise. During the early phase of the pandemic, corporate bankruptcies unexpectedly declined considerably (-35% during the first half of 2020), due to newly introduced bankruptcy protection legislation and administrative delays in the registration of insolvencies during the lockdown periods. As pandemic recovery measures were in the process of being phased out, insolvencies picked up again from Q4/2021 onwards. With high energy prices further amplifying the impact of Covid, insolvencies rose consistently for seven consecutive quarters, reaching a level that exceeded their pre-pandemic level by Q2/2023 (Figure 10). Insolvencies are likely to remain high in the near future. Rising wage demands and increased borrowing cost have negatively impacted corporate profits, leading unit profits to decline during the first half of 2023, a trend which is expected to continue throughout 2024 (European Commission, 2023b; Allianz, 2023).

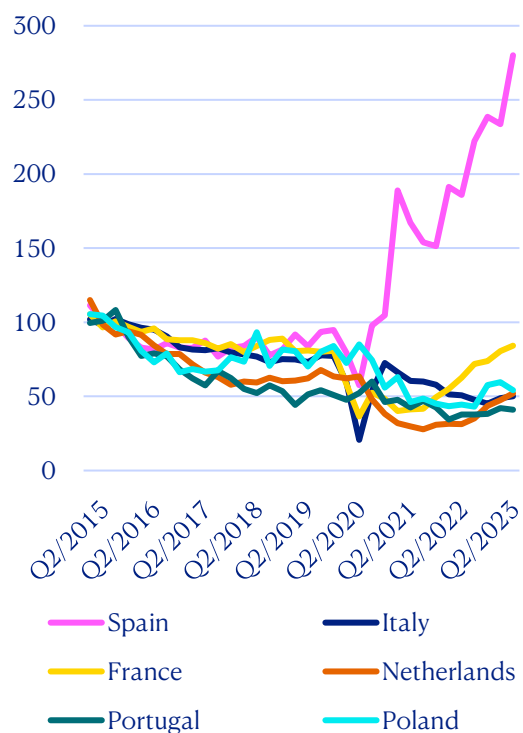
Figure 10: Business dynamics in the EU-27



b) Insolvencies by sector (Q4/2014 = 100)



c) Insolvencies by country (Q4/2014 = 100)



* Bankruptcies are defined as the number of legal units that have started the procedure of being declared bankrupt, by issuing a court declaration, at any time during the reference quarter Q (which is often provisional and does not always mean cessation of an activity). New registrations are defined as the number of entered legal units in the registration register at any time during the reference quarter Q, according to the respective administrative or legal procedure. The data on the absolute number of registrations of new businesses and bankruptcies on quarterly basis is provided by the national statistical institutes of the EU and EFTA Member States to Eurostat, on a voluntary basis (Eurostat, 2021). Due to the experimental nature of these data, interpretation should proceed with caution.

Source: Eurostat, authors' calculations

Furthermore, corporate demography in the EU has been negatively impacted by stagnating business creation. After having declined throughout the first half of 2022, European business

registrations have increased only slightly since, consistent with the current sluggish recovery prospects of the EU economy and the negative impact of current macro-economic and geopolitical uncertainty on entrepreneurship dynamics.

Aggregate European insolvency data hides significant sector-level heterogeneity (Figure 10, panel b). While insolvencies have been trending upwards for all sectors considered, the rise has been particularly pronounced for hospitality and transport, providing support for the validity of our earlier hypotheses. The sharp rise in insolvencies in the hospitality sector, which nearly doubled compared to the pre-Covid period, could indeed indicate that the delayed onset of the impact of the Covid restriction has started to materialise. Insolvencies among transport companies rose by a comparable magnitude, likely explained by evolution on the energy market and the reversal of the business cycle, as the sector's cost structure is dominated strongly by energy prices and the demand for transport services is notoriously procyclical.

Insolvencies have been on the rise in most European countries (Figure 10, panel b). The rise in Spanish insolvencies has been particularly dramatic. While Spain was among the countries worst hit by the pandemic and was consequently subjected to the harshest lockdown measures (Mathieu et al. 2020), the sharp rise is partly explained by a recent reform of insolvency law that aims to improve dynamics in corporate demography by making it easier for Spanish companies to restructure debt, thereby avoiding lengthy restructuring processes (Reuters, 2023).

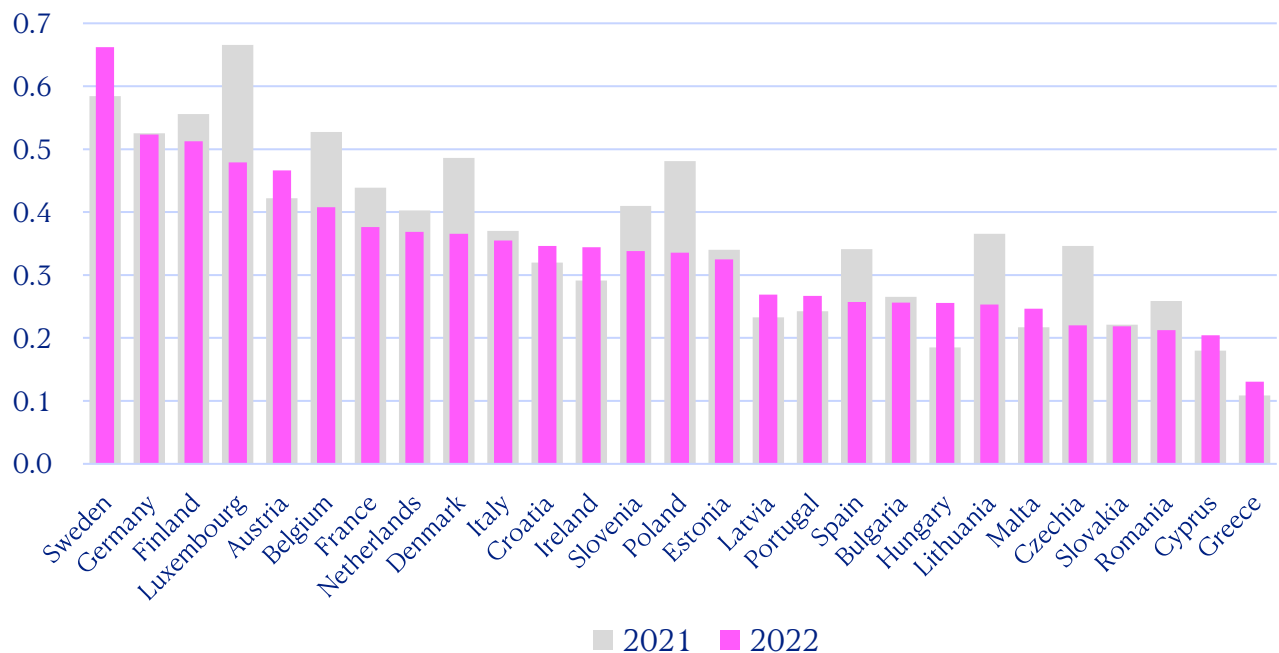
Overall, the current macro-economic outlook paints a bleak picture of the European economic recovery process. Economic growth prospects remain at historically low levels and inflationary pressures appear more persistent than initially anticipated. This suggests that a near-term reversal in the ECB's monetary policy path is unlikely, implying capital costs for European corporates in general, and SMEs in particular, are expected to remain elevated for the foreseeable future. In accordance with these dynamics, corporate investment remains depressed and has yet to recover completely from the contraction caused by the Covid crisis. This will continue to impact European business dynamics, which has recently been characterised by a significant rise in insolvencies and stagnating business creation.

3 | SME finance environment

3.1 | The EIF SME Access to Finance Index (ESAF)

The discussion on the general SME access to finance environment is introduced by the EIF SME access to finance index (ESAF). The ESAF is a composite indicator that summarises the state of SME financing for each of the EU Member States. Box 1 provides an overview of the ESAF’s components. The results of the latest update, using data for 2022, are presented in Figure 11.¹⁰ The current update ESAF index incorporates the initial impact of the current inflationary environment and its effect on interest rates, as well as the impact of the ongoing war in Ukraine on SME financing conditions.

Figure 11: The 2022 EIF SME Finance Index (October 2023 update)



Source: Torfs (2023)

¹⁰ The results are based on the most recent data available at the time of writing (October 2023) and refer to the full year 2022, or the second half of 2022 for all survey-based indicators. The ESAF Index is a relative indicator, which measures SME financing conditions for any given EU Member State relative to other EU countries, and its interpretation should proceed accordingly. For more details on the ESAF and its interpretation, see Gvetadze et al. (2018).

Box 1: The four ESAF subindicators

Loans:

- Percentage of SMEs using bank loans in last 6 months
- Percentage of SMEs using grants or subsidised bank loans in last 6 months
- Percentage of SMEs not applying for a bank loan because of possible rejection in last 6 months
- Interest rate for loans under EUR 250k (floating rate with IRF up to 1 year)
- Interest rate spread (under EUR 250k vs over EUR 1m for floating rate with IRF up to 1 year)

Equity:

- Venture Capital Investments / GDP
- Value of IPO market / GDP
- Percentage of SMEs using equity capital in last 6 months

Credit and Leasing:

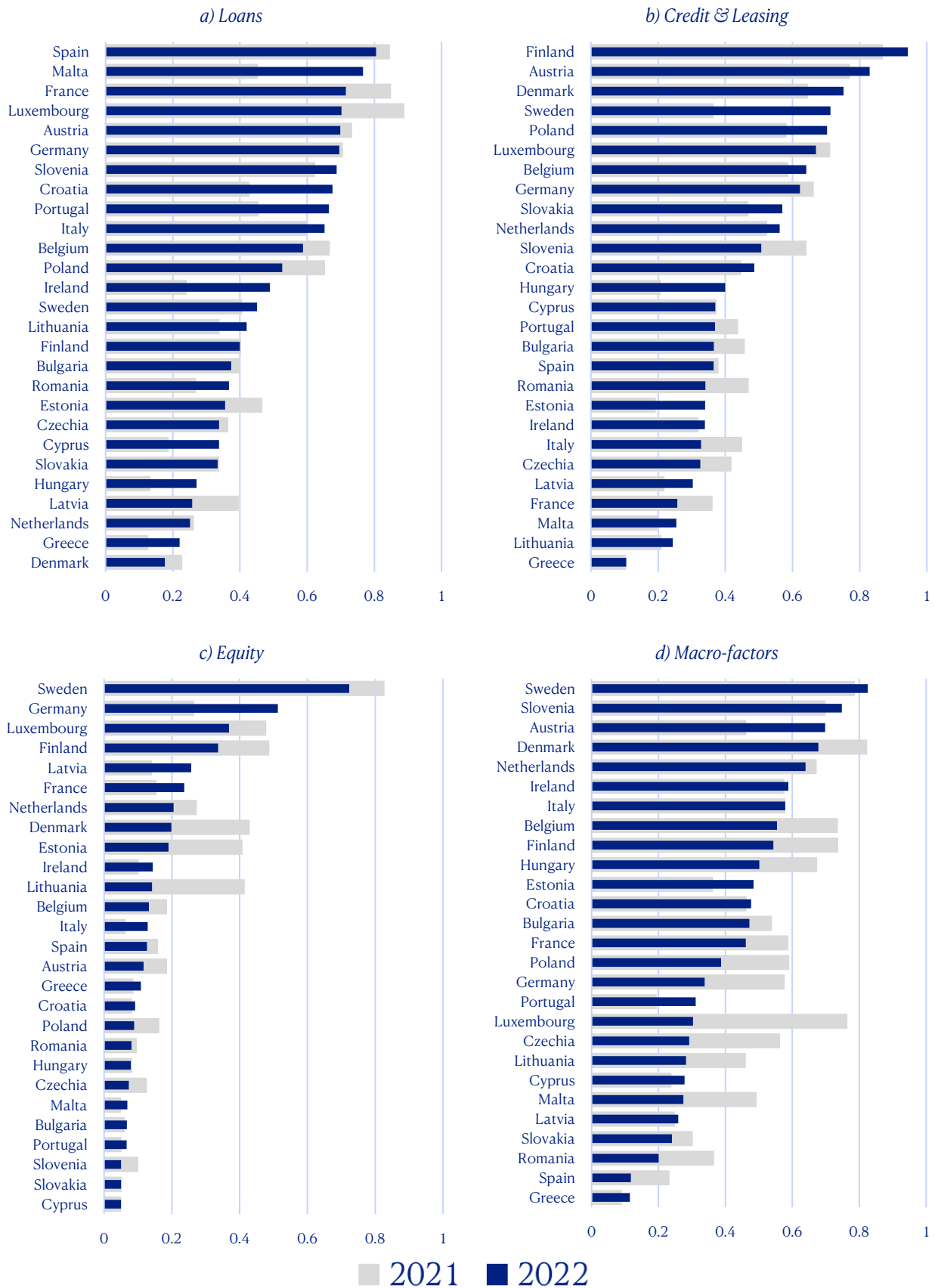
- Percentage of SMEs using bank overdraft, credit line or credit card overdraft in last 6 months
- Percentage of SMEs not applying for the above because of fear of possible rejection in last six months
- Percentage of SMEs using leasing or hire-purchase in the last 6 months
- Median interest rate charged to SMEs for credit line or bank overdraft application in last 6 months

Macro Factors:

- Gap between actual and potential GDP
- Bank non-performing loans to total gross loans
- Percentage of SMEs feeling that there are no financing obstacles

Source: Torfs (2023)

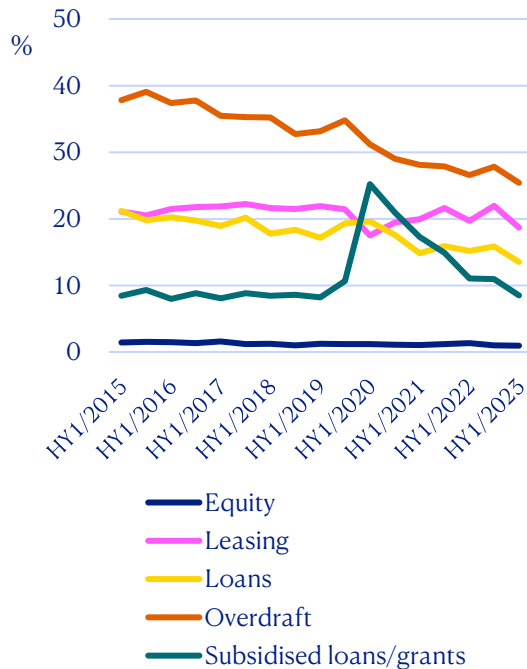
Figure 12: The 2022 EIF SME Access to Finance sub-indexes



Source: Torfs (2023)

Dynamics in the 2022 update of the ESAF were driven by a variety of factors. While the use of subsidies financing product reverted to pre-pandemic levels, debt and credit & leasing

Figure 13: Share of Euro area SMEs using...



Source: ECB SAFE, authors' calculations

the aggregate ESAF ranking was caused by better conditions on the credit & leasing and equity market.

SMEs in Czechia, Lithuania and Poland registered the largest decreases in their aggregate ESAF ranking. For Czech SMEs, relative loan conditions remained roughly constant, but the credit & leasing environment deteriorated significantly. The median interest rate charged on credit lines or bank overdraft increased disproportionately compared to other EU countries and the share of Czech SMEs using those products decreased consequently, which was reflected by a large decline in the associated subindex. For Lithuania, the decline in the index was driven by evolutions in the macro-economic environment, but also on equity markets, where the percentage of Lithuanian SMEs using equity financing declined severely from 3% to less than one 1%, dropping well below the EU country average.

For more details on the most recent ESAF Index update, readers are referred to the dedicated statistical annex of the EIF SME Access to Finance index (see Torfs, 2023), which provides an elaborate overview of the data underlying the recent update, its subindices and their indicators.

conditions within Europe diverged, as the impact of inflation on borrowing costs differed significantly between countries. High rates also created headwinds for equity markets, as fundraising conditions deteriorated and the share of SMEs reportedly using equity financing sunk to an all-time low (Figure 13). These conditions led Sweden to head the 2022 ranking, followed by Germany and Finland. Greece closes the ranking, preceded by Cyprus and Romania.

SMEs in Croatia, Ireland and Latvia experienced the largest improvement in SME access to finance conditions. For Croatia and Ireland, aggregate index dynamics were determined almost entirely by the loan subindex, as the average cost of borrowing for Croatian and Irish SMEs did not increase to the same extent as it did in other EU countries and also decreased relative to the cost of borrowing for large loans. For Latvia, the improvement in

3.2 | SMEs' perspective on access to finance

The discussion on SMEs' perspective on access to finance opportunities is based on the ECB's SAFE survey (ECB, 2023a). At the time of writing, the most recent survey wave was administered among European corporates between the 4th of September and 18th of October 2023, during which SMEs are polled about their perception on access to finance for the period ranging from April 2023 to September 2023 (referred to as HY2/2023 in this chapter).

SME access to finance issues had increased sharply over the course of the pandemic (Figure 14). The share of SMEs that report access to finance to be a significant problem surged from 28% prior to the pandemic (HY1/2020), to 34% during the first semester of 2020, the largest increase recorded since the beginning of data collection (Figure 14, upper panel). The rise in access to finance issues was not unique to SMEs and was also experienced by larger companies, albeit to a lesser extent. Following the initial steep rise in access to finance issues, conditions improved significantly during the second semester of 2020, on account of the extensive pandemic liquidity support programs that were

provided both at the national and the European level. The year 2021, however, provides a mixed picture. During the first semester, SMEs continued to benefit from wide financial support and access to finance issues declined further, leading to a share of SMEs that experience significant issues in accessing external financing of 25.3% in HY1/2021, the lowest share recorded since the beginning of measurements. However, during HY2/2021, access to finance issues increased again, possibly driven by the phase-out of public support programs and the sluggish post-pandemic economic recovery process. Since then, SME access to finance issues appear to have stabilised, fluctuating just below 25%. During the first semester of 2023, 24% of Euro area SMEs reportedly experienced severe access to finance issues. While relatively low share by historical standards, it remains indicative of the existence of a structural market failure.

SME access to finance issues decreased in the majority of Euro area countries (Figure 14). In particular for Greece, this decrease is notable, as the share of SMEs reporting severe access to finance issues declined to 34%, a decline of 35 percentage points since the record high recorded in the aftermath of the financial crisis and the lowest value recorded since the beginning of measurements. In contrast, SME finance conditions appeared to have deteriorated significantly

The SME Financing gap

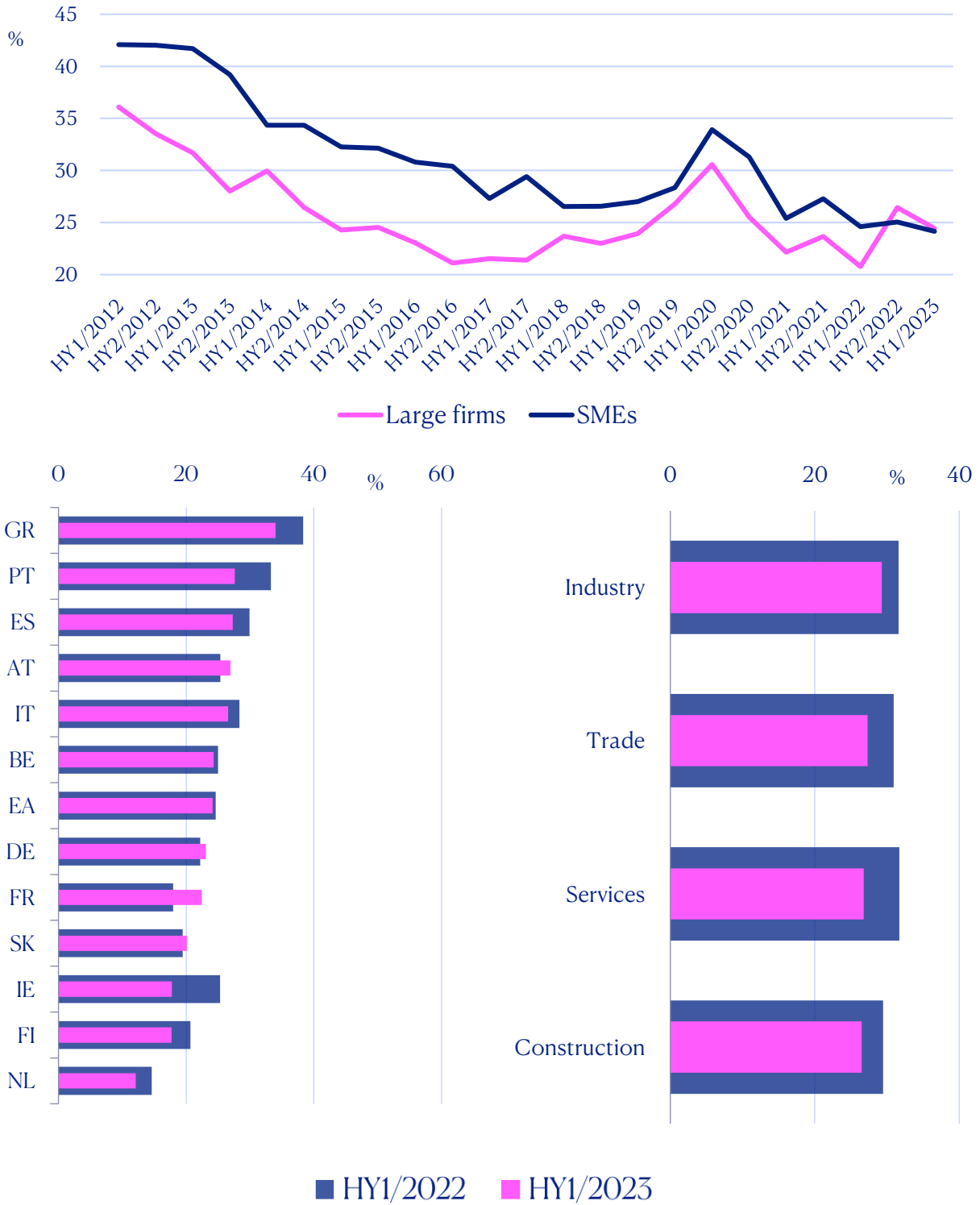
Access to finance is a structural problem for SMEs. Financial institutions are generally reluctant to extend uncollateralised credit to SMEs, even at high interest rates. As a result, many SMEs with economically viable projects cannot obtain the necessary financing from the regular system of financial intermediation.

This phenomenon is often referred to as the *SME financing gap*, a situation in which the market is not able to supply a sufficient amount of external financing to SMEs. This market failure, resulting in a sub-optimal equilibrium outcome, is rooted in the existence of information asymmetries, which lead to credit rationing either through adverse selection of low-quality borrowers or moral hazard issues (Akerlof, 1970; Jaffee and Russell, 1976; Stiglitz and Weiss, 1981).

This market failure warrants government intervention in SME capital markets, for example, through public support for the VC ecosystem (see Chapter 4 |), credit guarantee schemes (see Chapter 5.1 |5.1.1 |), or other policy measures aimed at vitalising the SME external financing ecosystem.

in France, where the share rose by 3 percentage points. From a sector perspective, access to finance issues declined across all sectors, but most strongly for service sector SMEs.

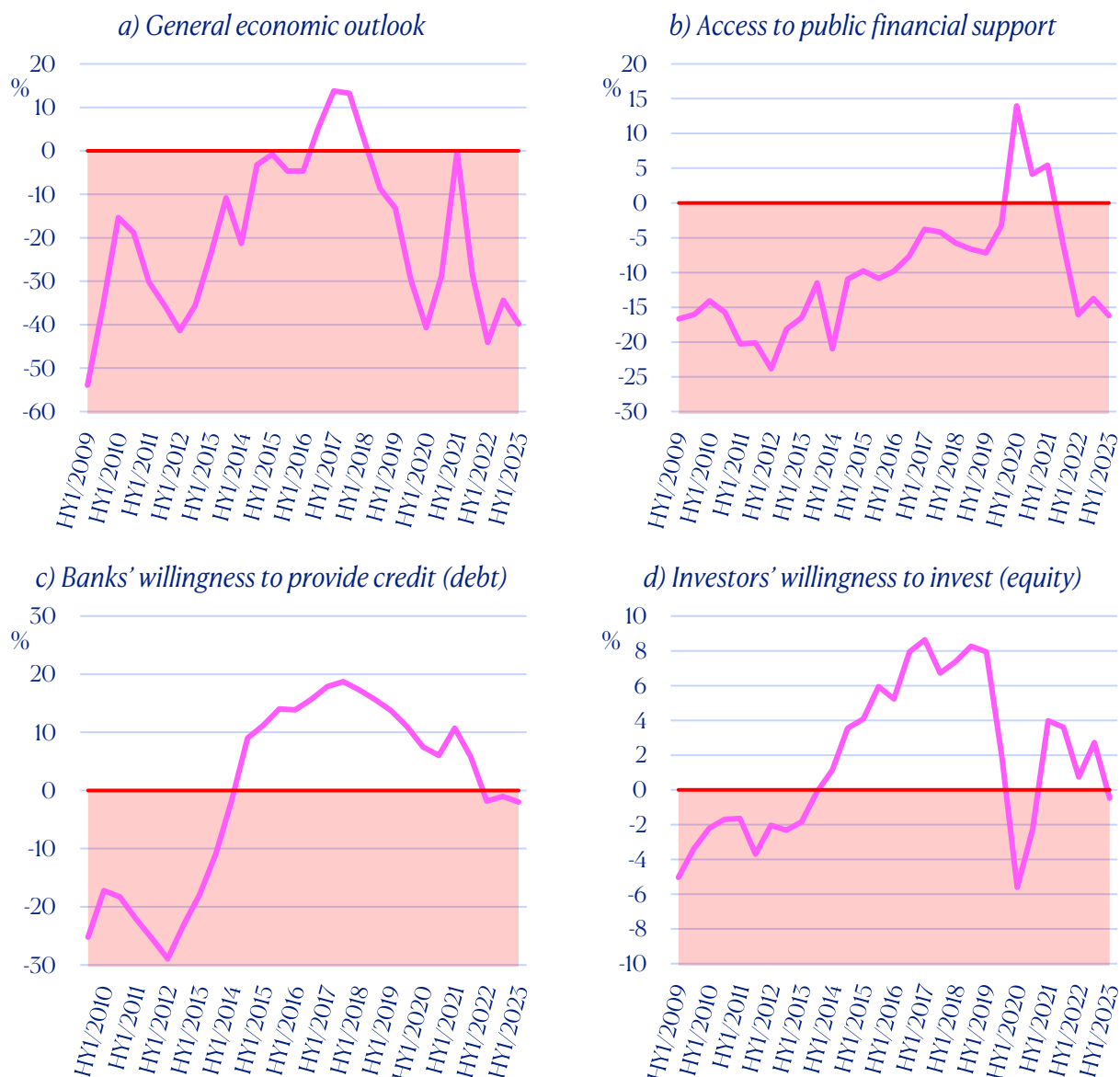
Figure 14: Percentage of SMEs reporting access to finance to be a highly important issue*



* Ranking it 7 or more on a scale up to ten, when asked how pressing of a problem access to finance was in the six preceding months.

In the immediate aftermath of the pandemic, access to public financial support was an important positive driver of external financing availability environment (Figure 15, panel b), attesting to the effectiveness of the pandemic recovery initiatives, as the vast majority of European SMEs had access to government support schemes. These schemes mostly helped firms to finance working capital needs and meet their short- and medium-term obligations. For example, nearly half of SMEs used the financing received from those schemes to finance their wage bill (ECB, 2023a). More recently, many of those support initiatives have been terminated, which led to a sharp decline in the associated indicator (panel b).

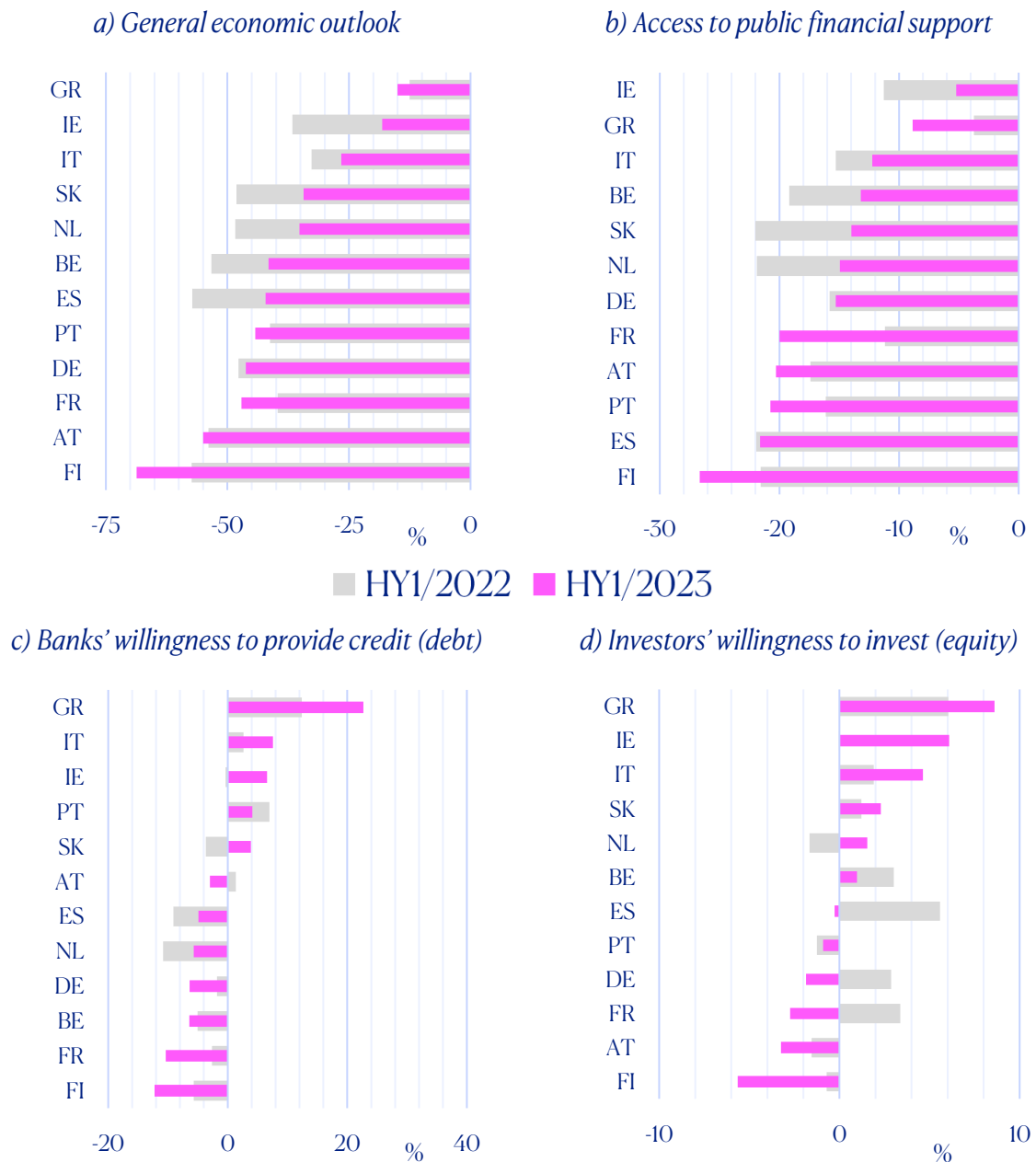
Figure 15: Factors driving the availability of external financing to Euro area SMEs*



* Net-percentages, calculated as the difference between the share of positive vs negative respondents, based on the SAFE Survey question 11: For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past six months? The outcome is to be interpreted as a rate of change, for example, a positive percentage implies that on aggregate, conditions related to that factor have improved during the considered period.

SMEs have grown increasingly worried about the general economic environment (Figure 15, panel a) and tightening bank financing conditions (panel c), while equity investors' willingness to invest, after having been perceived as a positive contributing factor, reverted to being perceived as a negative factor (panel d).

Figure 16: Factors driving the availability of external financing by Euro area Member State*



* Net-percentages, calculated as the difference between the share of positive vs negative respondents, based on the SAFE Survey question 11: For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past six months? The outcome is to be interpreted as a rate of change, for example, a positive percentage implies that in the aggregate, conditions related to that factor have improved during the considered period.

Comparing contributing factors across Euro area countries (Figure 16), SMEs are univocal about the negative contribution of the general economic outlook and lack of public support, albeit to a differing extent. Interestingly, Greek SMEs were least pessimistic about the economic outlook, while Finnish SMEs were most pessimistic, possibly reflecting its proximity to Russia and the associated impact of the rise in geopolitical uncertainty. Finnish SMEs were also most pessimistic about the availability of public financial support. A mixed picture emerges when considering the contributing factors related to debt and equity availability (panels c and d), with about half of Euro area countries considering them to contribute positively for either factor.

In sum, the recent wave of the ECB's SAFE survey provides a mixed picture about SMEs' perception of the current financing environment in the Euro area. As central banks are tightening monetary policy to combat mounting inflationary pressures, interest rates have increased exponentially, significantly contributing to a rise in the costs of capital. While SME external financing conditions appear relatively favourable by historic standards, about 1 in 4 Euro area SMEs continues to report severe issues in accessing finance, which they report to be driven mainly by a lack of public financial support and the current bleak economic outlook.

3.3 | Bank lending activity & SME bank financing conditions

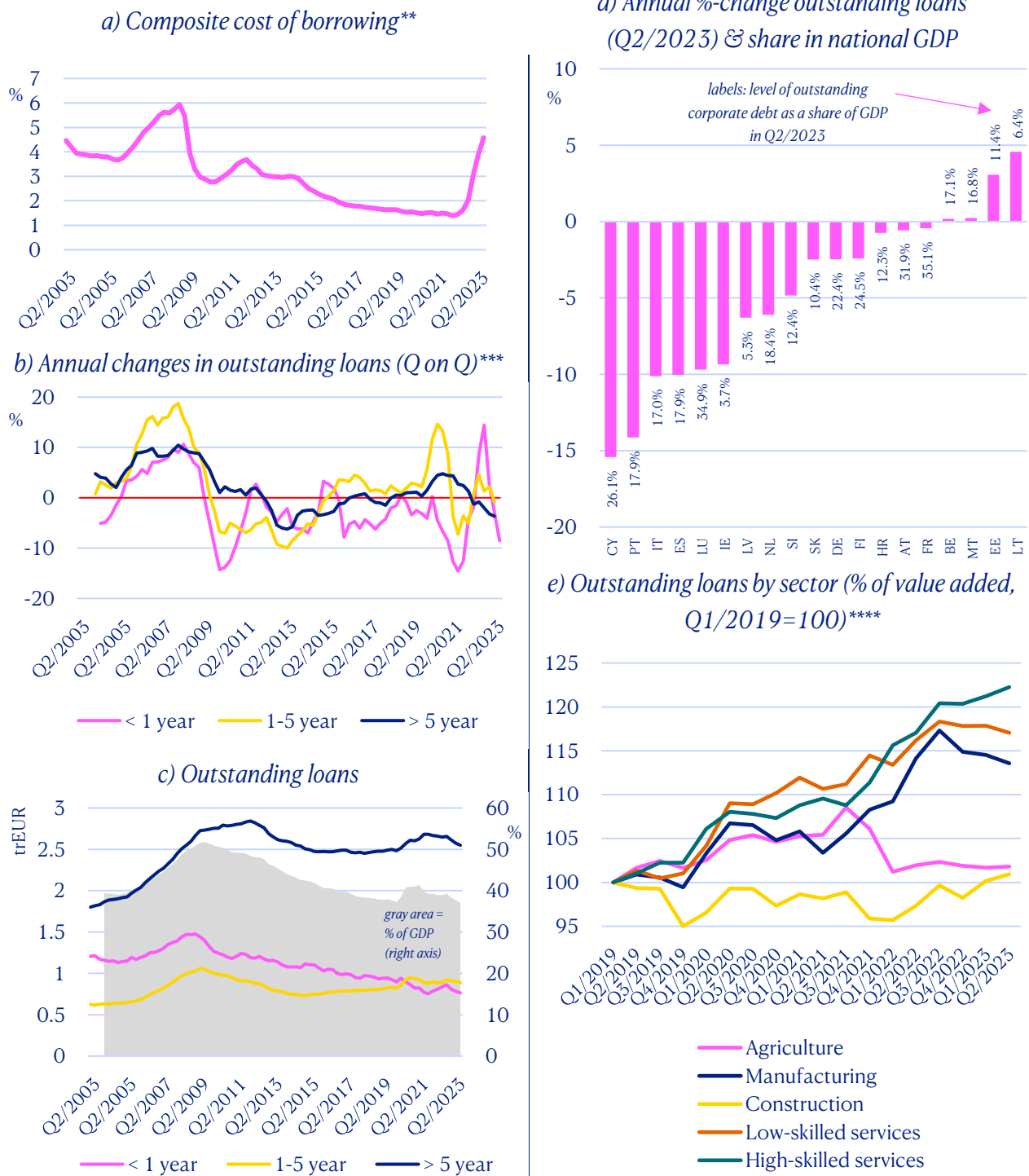
The bank-lending channel has traditionally been the most important source of external financing for SMEs, particularly in Europe, where SMEs rely disproportionately on bank-based debt instruments to finance working capital needs and long-term investments. Corporate debt-reliance further intensified during the Covid-19 pandemic, as European SMEs relied heavily on public financial support, such as public guarantee schemes or subsidised lending, to meet with their urgent, short-term liquidity needs.

Aggregate corporate lending activity

After a long period of either declining or stagnating interest rates, corporate borrowing costs have risen sharply over the past year (Figure 17, panel a). By the end of 2021, the ECB's corporate borrowing cost indicator¹¹ bottomed at 1.35%. From then onwards, rates have been rising steadily, pushing the corporate borrowing cost indicator up to 4.99% by August 2023, a level not observed since 2008. While the rate of increase has declined in recent months, it is likely that corporate borrowing costs will increase further during the final quarter of 2023, in line with the evolution of 10-year sovereign bond yields.

¹¹ As indicated by the ECB's composite cost of borrowing indicator, which calculates borrowing costs to Euro area corporates as a volume-weighted average across all maturity and loan size segments.

Figure 17: Lending of private lenders to non-financial corporations* (Euro area, 2015 prices)



* Monetary financial institutions, credit institutions, other financial intermediaries and electric money institutions, excluding central banks. GDP normalisation proceeds with quarterly GDP data (current prices) for (nominal) quarterly lending flows. Normalisation of (nominal) outstanding loans, a quarterly stock variable, proceeds with a 4-quarter moving-sum of quarterly GDP data (current prices). ** To Euro area non-financial corporations. *** Lending flows are defined as the balance between new business volumes and repayments. **** Low-skilled service sector: NACE sections G to J; High-skilled service sector: NACE sections L, M and N.

Source: ECB, authors' calculations

On account of rising borrowing costs, corporate lending activity declined strongly throughout 2022 and 2023. Short-term lending flows entered into negative territory in the final quarter and recovered only marginally in 2023, hovering just above 0 during the first three quarters of the year, leading outstanding short-term loans to decline significantly throughout the first quarters of 2023. This is likely to be indicative of an imminent reversal in the business cycle, as short-term lending is used to finance working capital needs, such as inventory replacement or salary payment.

Long-term corporate lending (> 5 years) has been trending downwards since the beginning of the Covid-19 crisis, with no signs of a pending recovery. Net flows turned negative since the second quarter of 2022, leading the real outstanding long term long stock to shrink by EUR 130bn.

Decreasing nominal lending activity combined with rapidly rising inflation has led to a further decline in corporate lending activity relative to GDP. After a strong, yet temporary surge caused by the pandemic recovery programs, total corporate outstanding loans as a share of GDP has continued its decade long downward trend, reverting back to pre-Covid levels, dropping to 37% by the beginning of the second semester of 2023.

The corporate loan stock decreased in most Euro area countries (Figure 17, panel d). Outstanding corporate loans increased only in Estonia and Lithuania, albeit modestly, growing by less than 5%. When measured relative to GDP, corporate indebtedness also decreased.

Borrowing costs by maturity and size segment.

The ECB provides data on interest rates for lending activity by loan size and maturity. The interest rate on short-term loans serves as a proxy for short-term working expenditures, while interest rate on longer term maturities are a better proxy for the cost of durable investments. The interest rate size spread is defined as the excess interest rate charged on loans smaller than EUR 0.25m compared to loans with a value exceeding EUR 1m. Assuming lending below EUR 0.25m provides a good proxy from SME lending, a high size-spread indicates a disadvantaged competitive position for SMEs vis-à-vis larger borrowers.

Small loans typically carry higher interest rates. This conflicts with traditional finance theory, which suggests that the risk of default increases with loan size. This could evidence the presence of fixed screening costs, or it could indicate that small loans are used for riskier purposes, such as financing working capital. The fact that the size spread is particularly high for short-term loans, provides some support for the latter argument. Another explanation is that banks possess a higher degree of market power in the small loan market segment, increasing the cost of obtaining bank finance for SMEs.

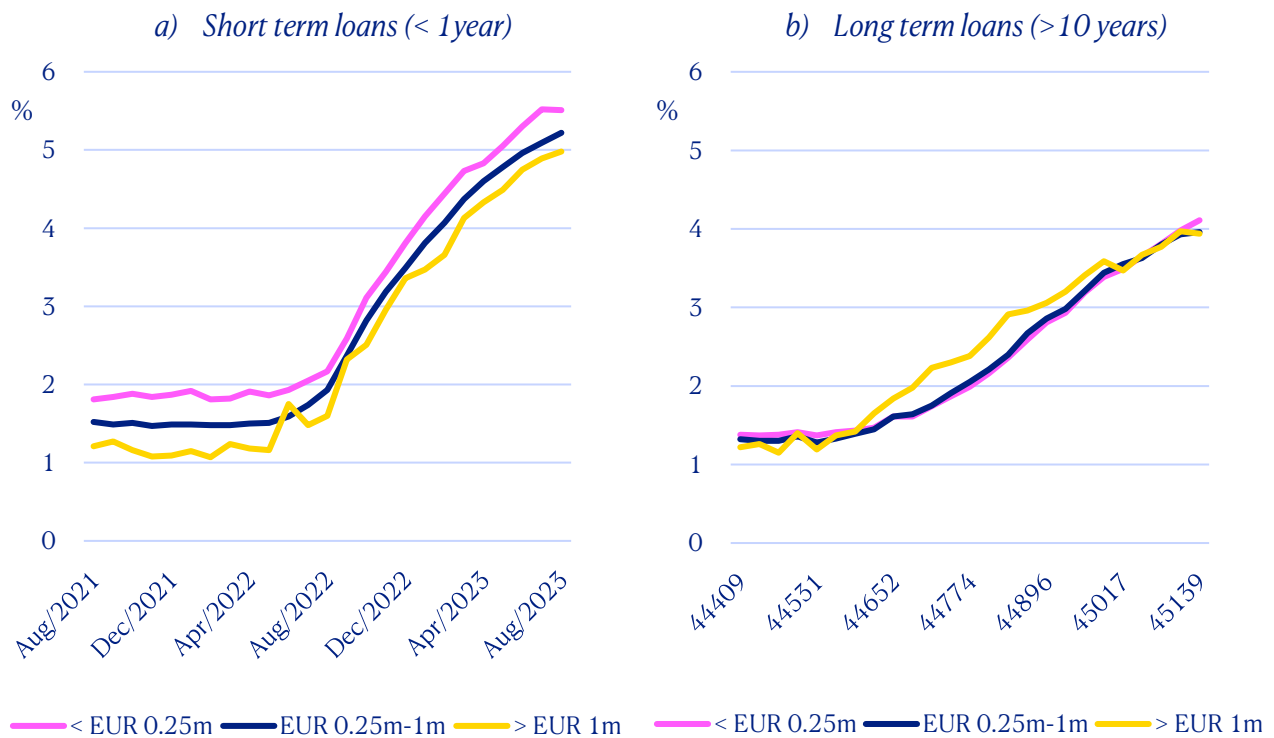
There is also an anomaly in the maturity spread of small loans. As liquidity decreases with loan maturity, long-term loans should carry higher interest rates. This holds indeed true for medium-sized and large loans, but for small loans, however, short-term lending is in fact more expensive. This too can be interpreted as evidence for the presence of a fixed cost element related to screening.

From a sector-perspective, corporate indebtedness, measured in relation to sectoral value added (Figure 17, panel e), decreased for low-skilled services and manufacturing, while staying constant for agriculture. For the construction sector, which has been struggling due to high material prices and declining demand for construction services, indebtedness rose significantly since 2022, likely attesting to the economic headwinds the sector is currently facing.

Corporate borrowing costs

The rise in interest rates has been most pronounced for short-term maturities, leading to a growing wedge between borrowing costs for short-term and long-term lending (Figure 18), consistent with the inversion of the Euro area yield (ECB, 2023b). Inverted yield curves appear when investors consider near-term risk to be higher than long-term risks and are considered reliable predictors of a looming recession. For short-term loans, borrowing costs for small loans continue to exceed those of larger loans. In contrast, on longer term lending markets (> 10 years), rates for different loan size classes have converged and were nearly equal by August 2023.

Figure 18: Interest rates by loan size and maturity,* and the interest rate size spread



* Maturities refer to the initial rate fixation period.

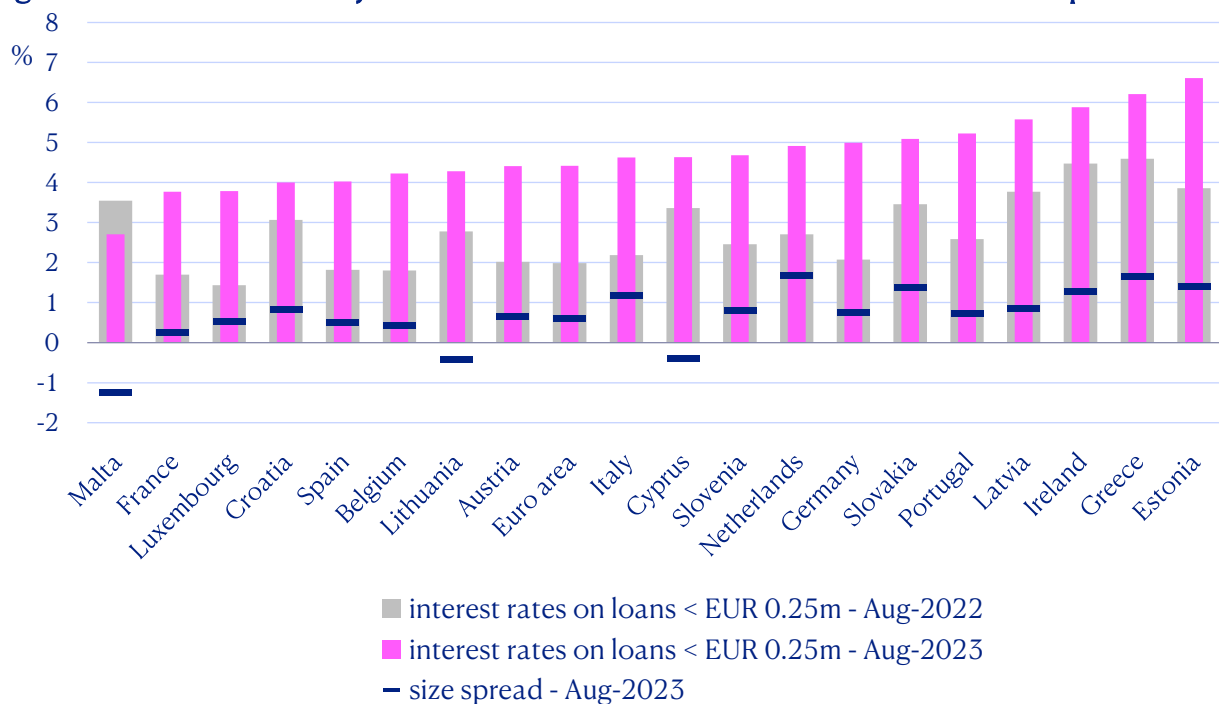
Source: ECB, authors' calculations

Borrowing costs for small borrowers demonstrate notable variation across different Euro area countries (Figure 19).¹² Averaged over the twelve months leading up to August 2023, interest

¹² In this context, see Wagenvoort et al. (2011) who show that the European market integration for small loans, in particular with a short rate fixation, has not yet been achieved, explaining the non-uniformity of bank lending rates on small loans across Europe.

rates have escalated in all Euro area nations except for Malta, which now offers the most advantageous conditions for small borrowers at a rate of 2.7%. In comparison to the same period a year earlier, the most substantial increases in borrowing costs were observed in Germany and Estonia. Additionally, among the EU countries, Estonia, Greece, and Ireland currently exhibit the highest borrowing costs for small borrowers, underscoring the regional disparities within the EU lending landscape. In all but three countries – Malta, Lithuania, and Cyprus – interest rates are higher for small loans than for large loans, reflecting a common trend in the financial industry where smaller borrowings typically incur higher interest rates due to perceived higher risks and administrative cost.

Figure 19: Euro area country-level interest rates on small loans and the loan size spread*



* The spread is calculated as the percentage point difference between loans exceeding EUR 1m and loans smaller than EUR 0.25m. Twelve month backward moving averages were used to eliminate the influence of monthly outliers as well as seasonal influences and focus on the underlying trend. Countries or data points for which no sufficient data was available are omitted.

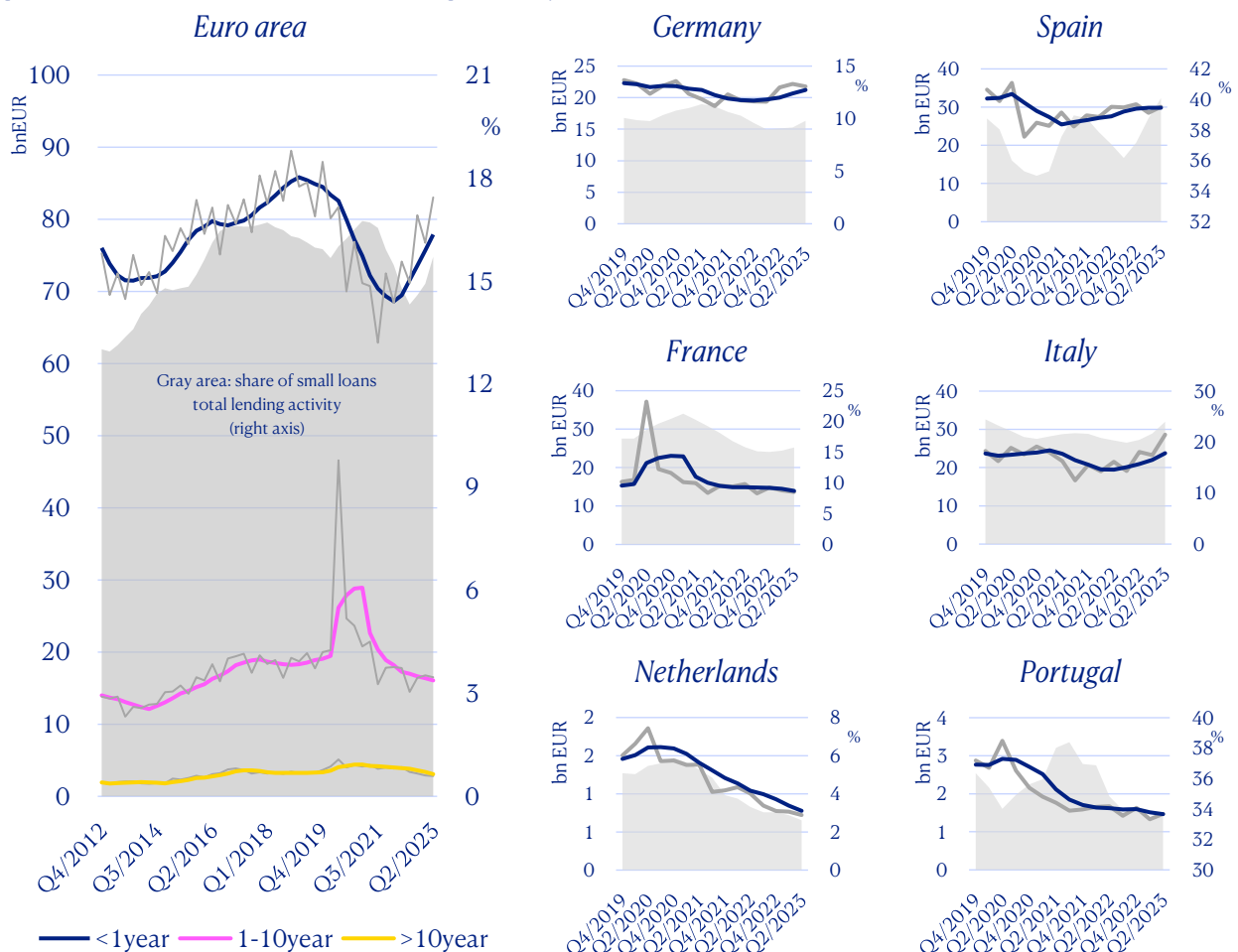
Source: ECB, authors' calculations

While cross-country heterogeneity in interest rates on small loans could be explained by differences in the risk-profile of local SMEs, a study found that such factors were only weak predictors of small loan rates (Caroll and McCann, 2016). Controlling for individual risk factors, the authors conclude that national differences in the cost of SME lending are associated with institutional characteristics, such as the recoverability of collateral and lack of competition in the banking sector, rather than firm-specific risk factors. Competitive pressure in the banking sector was found to be of particular relevance in explaining the interest rate size-spread. Large firms, having greater bargaining power in the bank-client relationship, can still negotiate lower interest rates in non-competitive banking markets, whereas SMEs face higher borrowing costs, in absence of alternative outside options (Berger and Udell, 2006; Affinito and Farabullini, 2009), implying an important competitive disadvantage for small firms vis-à-vis larger ones.

SME lending activity

Banks' new issuance of small loans to Euro area corporates (< EUR 0.25m, a common proxy for SME lending¹³) expanded during the initial phase of the Covid crisis, peaking at EUR 133bn in Q2/2020) and to a lesser extent by a rise in long-term, driven almost entirely by a sharp rise in the segment of medium-maturity loans (1-10 year) and to a lesser extent by a rise in long-term lending (Figure 20).

Figure 20: Evolution of small lending activity (new business volume, bn EUR, selected countries)*



* As approximated by the evolution of small lending activity (<EUR 0.25m), new business volume of loans to NFCs, other than revolving loans and overdrafts, convenience and extended credit card debt. To extract medium term trends, the coloured lines plot 12-months backward moving averages of the raw new business volumes series, the latter being characterised by large monthly fluctuations.

Source: ECB, authors' calculations

Short-term lending, on the other hand, declined sharply during the initial phase of the Covid crisis, continuing the decreasing trend that initiated already in 2019. Short-term lending experienced a resurgence since 2022, suggesting a shift in the lending landscape, reflecting changing financial strategies in response to current economic conditions.

¹³ Hueriga et al. (2012) show that small loans are a suitable proxy for the SME lending market.

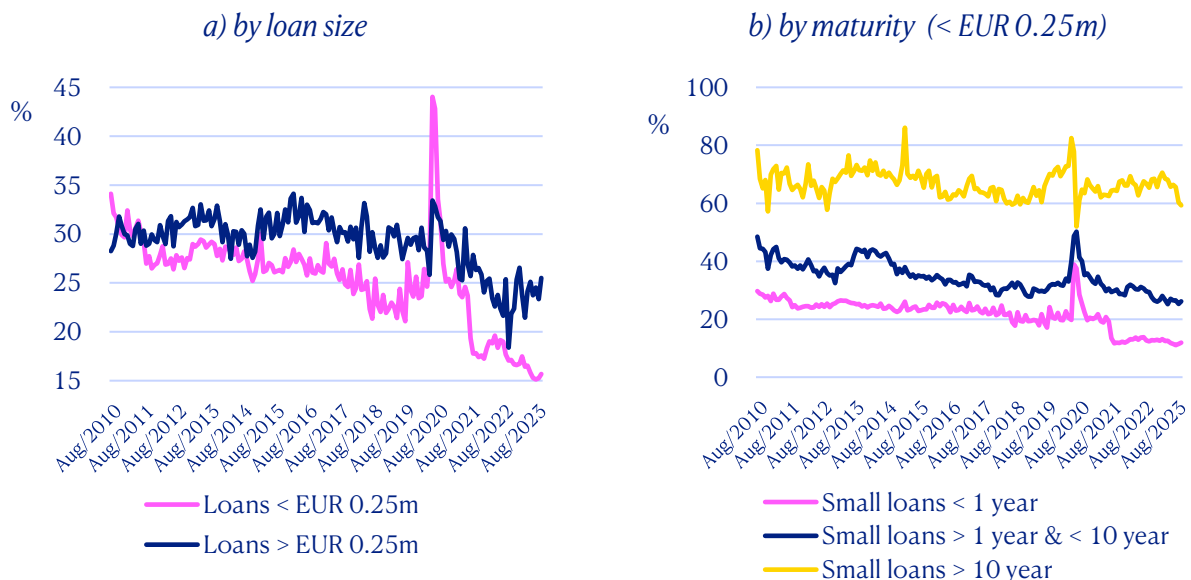
Medium-term lending activities remained robust until the second quarter of 2021 on the small loan segment, a trend that was likely influenced by pandemic-related support programs, which predominantly targeted this particular segment. However, following Q2/2021 there was a marked decrease in medium-term lending, a development that likely mirrors the gradual withdrawal of pandemic-era support initiatives. This downward trend persisted into the second quarter of 2023, and although the pace of decline seems to be moderating, recent data reveal that lending in this segment has now descended below the levels observed prior to the pandemic.

Mirroring developments on the medium-term segment, long-term lending also began to decline from the second half of 2021 onwards. However, different from what occurred on the market for medium-term loans, the rate of decline has intensified since the third quarter of 2022, presumably reflecting the combined impact of rising interest rates and a decrease in corporate investment appetite.

Secured (guaranteed/collateralised) SME lending activity

Secured lending, either through the use of collateral or guarantees, can enhance SMEs' access to finance by reducing the risk perceived by lenders, often leading to lower interest rates and more favourable loan terms. Additionally, they provide a form of security that can facilitate larger borrowing amounts or longer maturity periods, which can be crucial for SMEs' and investment and growth opportunities.

Figure 21: Share of guaranteed/collateralised lending activity (new business volume) in the Euro area



* 12-month backward moving average

Source: ECB, authors' calculations

In the wake of the Covid-19 pandemic, government-backed credit guarantee schemes contributed significantly to corporate liquidity support. This was reflected clearly in secured

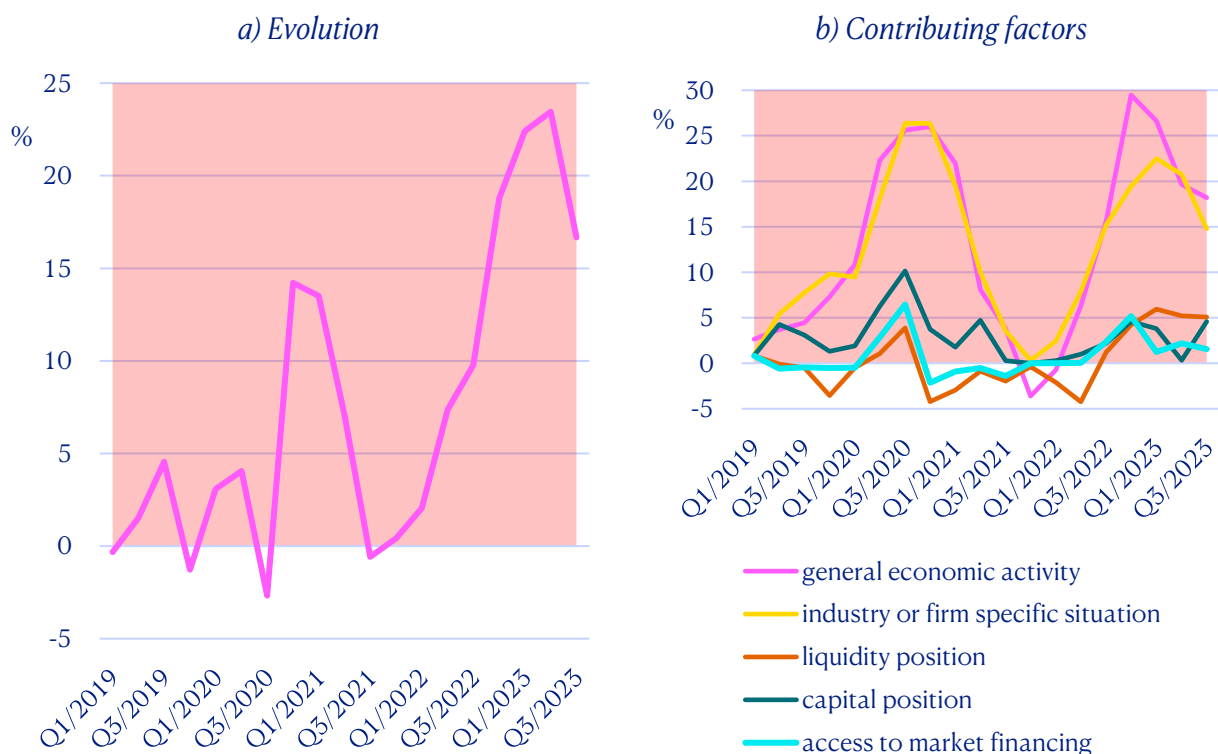
lending statistics, as activity on the bank lending market for loans backed by a guarantee or collateral spiked.

From 2022 onwards, with support programs gradually being terminated, the share of secured loans plunged to just 17% by 2022, falling well below its historical average. In particular the share of secured loans within the segment of smaller loans has undergone a notable decrease recently (left panel, Figure 21). Following the pandemic, liquidity aid programs were primarily directed at smaller loans, which resulted in nearly 45% of loans under EUR 0.25 million being supported by collateral or guarantees. Yet, by mid-2021, the prevalence of secured lending for small loans had fallen steeply, plummeting to 15% by the latter half of 2023.

Bank credit standards for SME lending

Banks have considerably tightened SME credit standards over the first three quarters of 2023 (Figure 22) although the rate at which they tightened decreased slightly in Q3/2023. Recently, banks reported to be less worried about the general economic environment, or firm-specific risks, compared to the beginning of 2023, likely reflecting the recent decline in inflation and its impact on economic sentiment.

Figure 22: Bank credit standards applied to SME lending by Euro area banks*



* Net-percentages, calculated as the difference between the share of banks that tightened, minus the share of banks that loosened credit-standard. Positive values (red area) indicate a tightening of credit standards and hence imply worsening credit conditions.

4 | Private Equity

Private Equity (PE)/Venture Capital (VC)¹⁴ is an essential source for start-ups, young, and high growth companies to create value, often through innovation. External equity is not to be seen as a substitute for traditional, mainly bank-centred, SME financing instruments. Rather, it serves a specific and restricted group of SMEs and mid-caps (including start-ups), which, nevertheless, significantly contribute to the innovativeness, productivity and development of the overall economy.

The justification for public intervention in the area of SME financing in general, and external equity financing in particular, is rooted in a number of factors, such as the presence of information asymmetries in the relationship between financier and recipient, the presence of fixed costs of investment and the existence of positive externalities originating from SMEs' innovation activities.¹⁵ In the PE/VC market, the long investment cycles can also deter private investors, especially in early stage financing, while public agents can be considered as more “patient” investors.

Against this background, it is one of EIF's aims to play a crucial role in establishing a sustainable VC ecosystem in Europe. We provide an overview of the European PE/VC market activity and prospects in this chapter.

4.1 | Investment activity

4.1.1 | Private equity funds

Over the past 25 years, the European PE activity exhibited booms and busts. The most famous peak periods were observed in 2000 and 2006, when the total amounts raised by PE funds located in Europe reached EUR 48bn and EUR 112bn, respectively, according to the statistics of Invest Europe (Figure 23; Box 2 provides more information on the Invest Europe data).

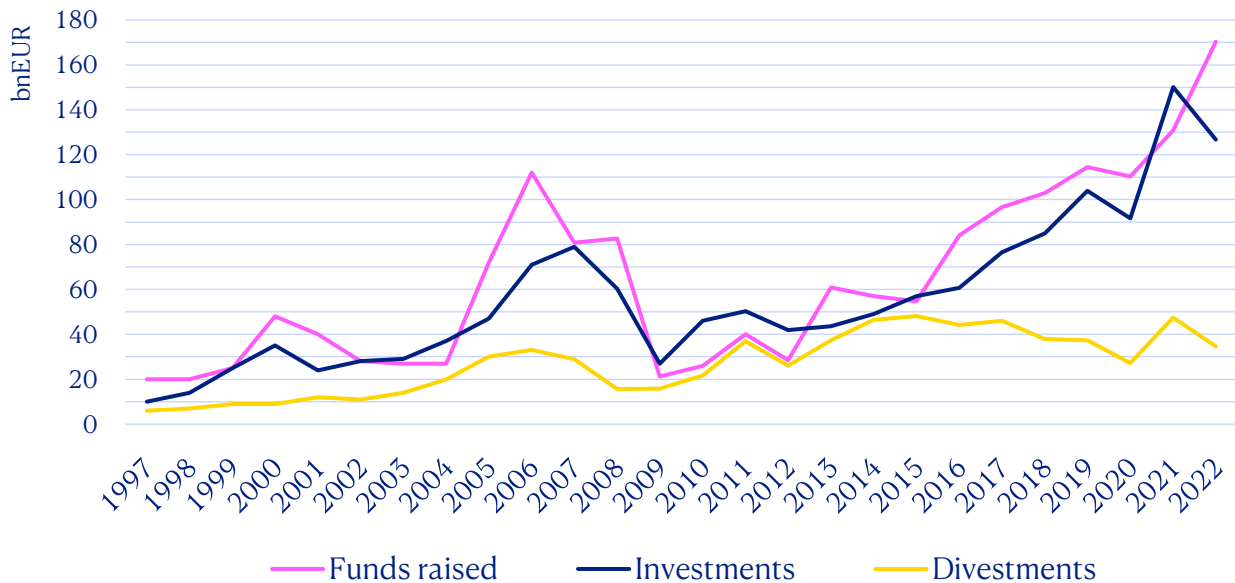
In the same years, the overall PE investment levels were at EUR 35bn and EUR 71bn (and even increased further to EUR 79bn in 2007). However, both booms were followed by significant downturns, i.e. the “dotcom crisis” in the early noughties and the financial and economic crisis from 2007 onwards. The severe crash of the European PE activity in 2008-2009 was followed by a rebound, and fundraising and investment reached new record levels at EUR 114bn and EUR 104bn, respectively, in 2019. In the Covid-19 crisis, the market activity suffered only a temporary

¹⁴ In this chapter, we follow the Invest Europe approach that includes VC as a subcategory of private equity.

¹⁵ See Section 5.1.1 | for an overview of the rationale for public intervention in SME financing.

setback, and total fundraising went down to EUR 110bn and investments at EUR 92bn in 2020. The crisis was immediately followed by another record year, with fundraising (EUR 131bn) and investments (EUR 150bn) reaching new all-time highs in 2021. Total divestment amounts also increased and were at EUR 47bn in 2021.

Figure 23: Fundraising, investment and divestment amounts by PE firms located in Europe*



* In this diagram, investment and divestment data are based on the “industry approach” (or “office approach”), i.e. by PE firms located in Europe, in contrast to the “market approach”, which is based on the location of the portfolio companies.

Source: Invest Europe, authors’ calculations

Box 2: Introductory information on Invest Europe data

In this chapter, numbers, diagrams and statements are largely built on statistics from Invest Europe (formerly EVCA, the European Private Equity & Venture Capital Association), and we would like to thank our colleagues from the Invest Europe research team for their support.

Invest Europe monitors direct PE investment funds that primarily focus on investments in Europe. The funds included in the statistics are PE funds making direct PE investments, mezzanine PE funds, silent partnerships, corporate venture structures (CVC), PE arms of banks, clean tech (energy) funds, co-investment funds and rescue/turnaround funds.¹⁶ Please note that Invest Europe PE statistics do not include infrastructure funds, real estate funds, private debt funds, distressed debt funds, primary funds-of-funds, secondary funds-of-funds and PE/VC-type activities that are not conducted by PE funds. Also not included are activities of business angels and hedge funds as well as corporate acquisitions outside of dedicated corporate venture programmes.

¹⁶ Silent partnerships: Mezzanine funds, specific to Germany. PE arms of banks: PE/ VC arms/ divisions of banks. Even if they do not invest from a pool of capital (usually rather from the bank’s balance), they follow the classic PE model. Clean tech (energy) funds, as long as they invest in clean-tech/ energy related companies and not in projects.

Box 2 continued:

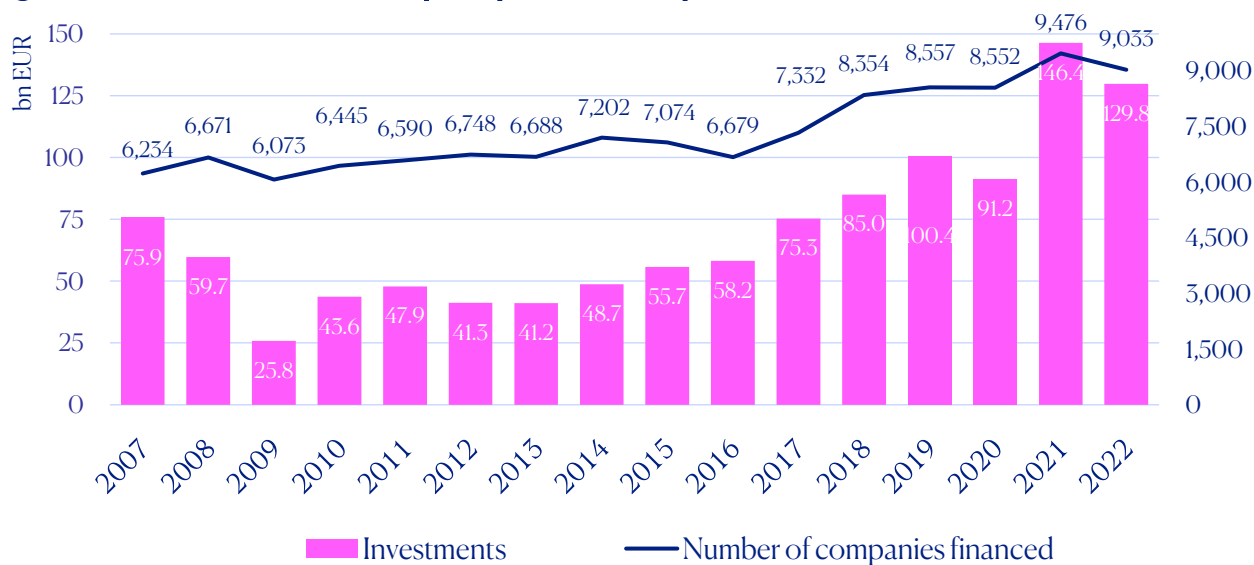
Invest Europe statistics can differ from the numbers reported by other data providers for the reason just mentioned and others, like differences in methodology, definitions and interpretations of the PE fund and investment stages and geographical definitions (e.g. of “Europe”).¹⁷

With data on more than 1,800 European PE firms, the Invest Europe statistics released in May 2023 cover 94% of the EUR 1,004bn in capital under management in Europe (based on end-2022 figures). Data since 2007 was restated and complemented with additional information. To a certain extent, this resulted in revised numbers in the Invest Europe statistics and this document.

See Invest Europe (2023) for more details.

In 2022, however, PE investments were hit by the combined effects of the Russian war of aggression against Ukraine, the subsequent geopolitical disruptions and the more difficult macroeconomic environment.¹⁸ PE funds located in Europe (statistics based on the “industry approach”; Figure 23) invested EUR 126.7bn, a decrease by 16% compared to the previous year. At the same time, investments by PE funds from all over the world (including Europe) in portfolio companies based in Europe (“market approach”) dropped by 11% to EUR 129.8bn (Figure 24). The number of European companies financed decreased by 5% to 9,033.

Figure 24: PE investment in European portfolio companies*



* Investment activity by PE firms in portfolio companies based in Europe (“market approach”). All investment figures are equity value, i.e. excluding leverage.

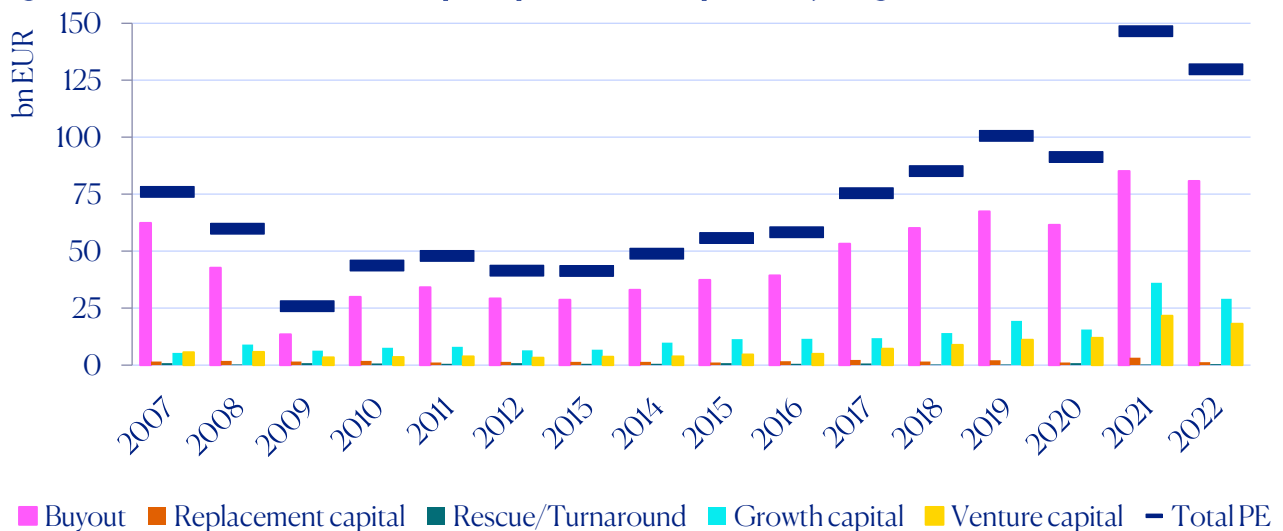
Source: Invest Europe, authors’ calculations

¹⁷ Data on the PE and VC market is scarce and sometimes inconsistent with one another when comparing different data bases. This is mainly due to a lack of data disclosure and different data collecting and compiling approaches. Therefore, it is “difficult to paint in definitive terms the level of investment activity and fund performance”, as stated by Kaplan and Lerner (2016). However, the authors also highlight that “the quality of information available has increased in recent years and can be expected to continue to do so going forward”.

¹⁸ See Kraemer-Eis, Block, Botsari, Lang, Lorenzen and Diegel (2023) for an overview of the impact of the Russian war against Ukraine, the subsequent difficult geopolitical situation and the macroeconomic environment on PE and VC market players.

A differentiation by stage focus (Box 3 provides an overview of the Invest Europe investment stage definitions) reveals that investments declined in all larger parts of the PE market in 2022, i.e. the buyout segment (by –5% to EUR 80.7bn), as well as the growth capital (–19% to EUR 29.1bn) and replacement capital (–59% to EUR 1.3bn) segments, while the smaller segment of rescue/turnaround capital (+65% to EUR 0.4bn) increased substantially (Figure 25).

Figure 25: PE investments in European portfolio companies by stage focus



Source: Invest Europe, authors' calculations

Box 3: Invest Europe definition of investment stages for private equity

Venture Capital

Seed: Funding provided before the investee company has started mass production/distribution with the aim to complete research, product definition or product design, also including market tests and creating prototypes. This funding will not be used to start mass production/distribution.

Start-up: Funding provided to companies, once the product or service is fully developed, to start mass production/distribution and to cover initial marketing. Companies may be in the process of being set up or may have been in business for a shorter time but have not sold their product commercially yet. The use of the capital would be mostly to cover capital expenditures and initial working capital. This stage contains also the investments reported as “Other early stage” which represents funding provided to companies that have initiated commercial manufacturing but require further funds to cover additional capital expenditures and working capital before they reach the break-even point. They will not be generating a profit yet.

Later-stage venture: Financing provided for an operating company, which may or may not be profitable. Later-stage venture tends to involve financing into companies already backed by VCs, typically in C or D rounds.

Box 3 continued:

Growth

A type of PE investment (often a minority investment) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Buyout

Financing provided to acquire a company. It may use a significant amount of borrowed capital to meet the cost of acquisition. Typically involves purchasing majority or controlling stakes.

Rescue / Turnaround

Financing made available to an existing business, which has experienced financial distress, with a view to re-establish prosperity.

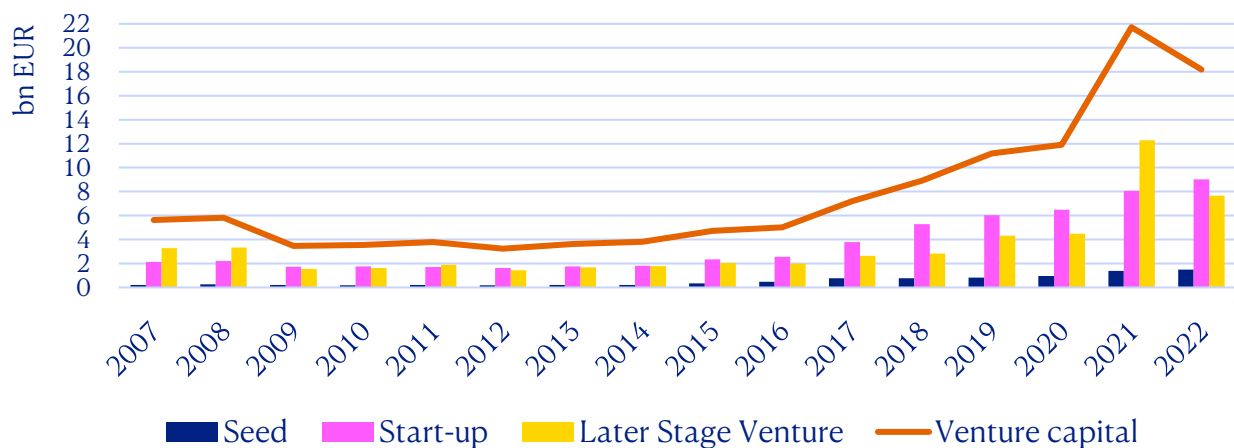
Replacement capital

Minority stake purchase from another PE investment organisation or from another shareholder or shareholders.

Source: Invest Europe (2023a)

VC investments dropped by 16% to a level of EUR 18.2bn in 2022. In terms of number of companies financed, the VC segment accounted for the majority of PE investments (5,435 out of 9,033). Within the VC market segment, later stage venture investments decreased (-38% to EUR 7.7bn), while investments at the seed (+8% to EUR 1.5bn) and start-up (+12% to EUR 9.0bn) stages increased (Figure 26); see Box 4 for a discussion of investments at the technology transfer stage.¹⁹

Figure 26: VC investment amounts by stage focus



Source: Invest Europe, authors' calculations

¹⁹ Please note that the investment activities of Business Angels are not included in the Invest Europe statistics, see Box 22. As business angel financing is important for the financing of SMEs and innovation, we present more information in Section 4.1.2 |.

Box 4: Financing technology transfer

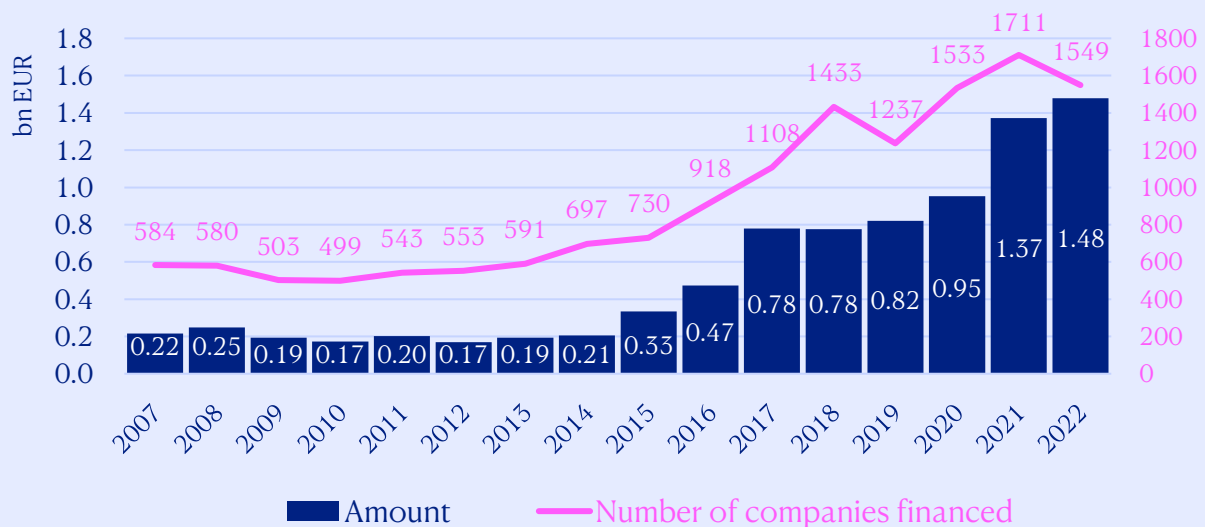
Technology transfer (TT) is the process of transforming the results of research and development into marketable products and services. It can take place through a number of means, in particular through the collaboration between research organisations and industry, the licensing of intellectual property rights, the creation of start-up businesses or university spin-out companies.

Although TT investments in Europe are in the radar of some investors, academic research is generally considered to be 'too new' or 'too high-risk' to be transferred out of the research laboratory and financed by the traditional investors. New discoveries and technologies may fail to realise their potential unless they become attractive to industry or downstream investors.

Equity investments in TT activities can contribute to reduce early-stage (pre-seed, seed and post-seed) funding gaps and sustain viable TT structures while generating financial returns for investors over time (EIF, 2016). Moreover, they contribute to ensure a strong and continuous deal flow in the VC market (EIF, 2017). In the field of TT and the commercialisation of research results, the EIF has undertaken a particular market development effort also in geographies with an emerging VC ecosystem, and EIF's investments in TT funds have encouraged private investors to look at the asset class. See EIF (2023) for latest initiatives.

Overall, annual seed stage VC investments²⁰ in European enterprises have grown more than eightfold since 2012 and reached a record level of EUR 1.5bn in 2022, according to Invest Europe data. In that year, the number of ventures financed was at 1,549.

Seed stage VC investments in European companies²⁰



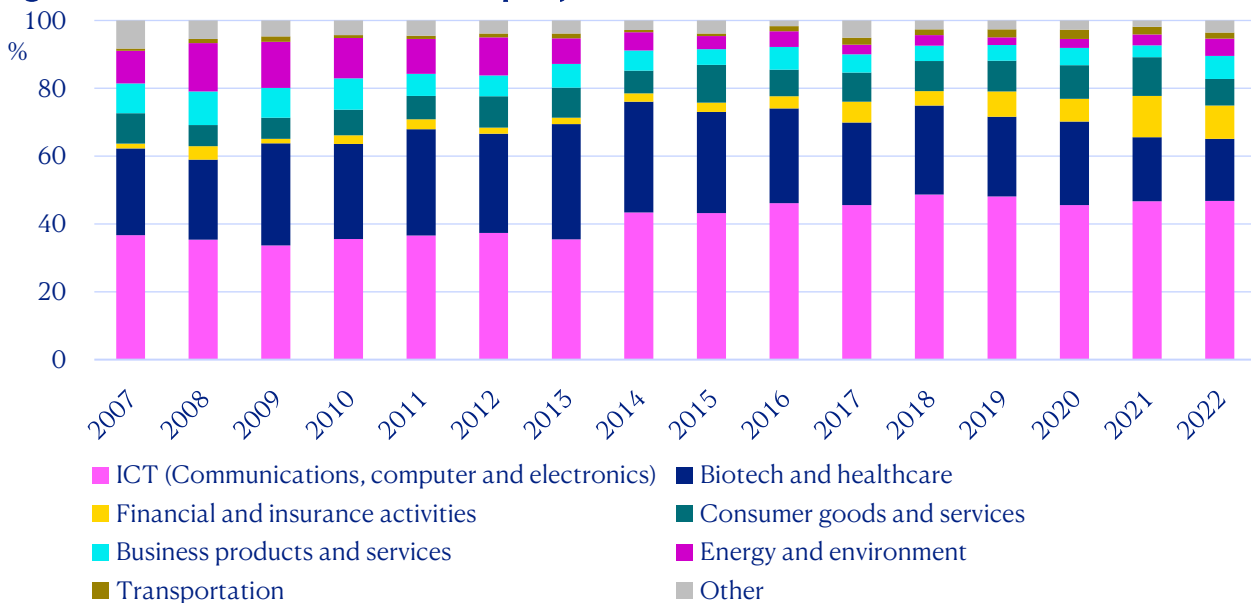
Source: Invest Europe, authors' calculations

Developments in venture investment by sector are shown in Figure 27. The relative importance of sectors has a certain stability over time: ICT (communications, computer and electronics) and biotech & healthcare have remained by far the most relevant industries for venture investment in

²⁰ The seed stage goes beyond TT, but it is the earliest investment stage for which data is provided in Invest Europe statistics (see Box 3 for the Invest Europe definition). Important additional tech transfer and seed stage investments that not only include equity instruments are, for example, grants, crowdfunding, but also equity deployed by non-VC/PE market participants. See, for example, Dealroom.co (2018) for an approach that differs from Invest Europe's and results in higher amounts reported for seed stage investment. See also Pitchbook (2023b) for recent information about pre-seed investments.

Europe since 2007. Despite a high level of investments in both sectors, the developments over time were different. Over the past thirteen years, the share of ICT in total VC investment activity even increased, on average, from 34% in 2009 to 47% in 2022. In contrast, the share of biotech & healthcare venture investments decreased from 34% in 2013 to 18% in 2022. The share of investments in the energy and environment sector decreased from 14% in 2008 to 2% in 2019,²¹ before increasing again over the past three years to a level of 5% in 2022. Moreover, the developments in the ICT sector had a substantial impact on structural changes in the VC market. Chapter 4.5.2 | provides a more detailed elaboration.

Figure 27: Venture investment in Europe by sector focus, 2007-2022*



* Our category “Other” contains the sectors Agriculture, Chemicals and materials, Construction, Real estate, and “Other” from the Invest Europe statistics.

Source: Invest Europe, authors’ calculations

Furthermore, according to Invest Europe, market participants have observed a notable amount of growth stage investments as follow-on investments in venture-backed companies that are not registered in VC investment statistics (but in growth stage statistics). In 2022, 28% of the total growth stage investment amount was received by venture-backed companies (Invest Europe, 2023a). Against the background of the scale up issue in Europe (see chapter 4.5 |) this is a positive sign. However, further flagship initiatives to support risk capital – covering various investment stages and sectors – will be necessary (AFME, 2017). This will also support the creation and growth of innovative enterprises in Europe. Signore and Torfs (2017) provide more insight into the value of innovation for EIF-backed start-ups (see also Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs, 2017, for an overview).

²¹ This development might be due to a re-positioning of traditional Cleantech VCs, who have stopped investing in capital-intensive companies to focus on digital solutions for energy and environment. This strand of investments is then typically classified under ICT. Similar considerations might apply for biotech & healthcare investments.

Corporate venture capital

Corporate venture capital (CVC) forms an important part of the VC market (Figure 28). CVC can serve both an investing corporation’s financial and strategic goals, e.g. to enhance its innovative capacity or to tap into new markets. CVC can take various forms. A common practice is that a corporate invests through a VC fund, but the number of dedicated CVC units, accelerators and other CVC manifestations has also increased (see Mawson et al., 2017). Novel CVC forms also include combinations of corporate and independent VC. Moreover, a small venture philanthropy community has also emerged (Siota et al., 2020).

In terms of volumes, it is mainly large companies in innovation-intensive industries that are active in this field, most prominently in the US (Brigl et al., 2016; Andonov, 2017). For example, companies like Google invest in start-ups in the fields of life science, healthcare, artificial intelligence, robotics, transportation, cybersecurity, and agriculture (Saunders-Calvert, 2017). Over a long period, the relatively low cost of capital had driven more corporates to become part of the game (Mankins et al., 2017). More recently, despite a more difficult macroeconomic environment, corporate investors have remained a resilient investor in global VC markets (PitchBook, 2023c).

Figure 28: VC fundraising amounts and corporate investors*



* Incremental amounts raised during year (in contrast to final closings only), excluding capital gains. “Total” represents classified and unclassified fundraising amounts. “Corporate, share” represents the percentage of corporate investors’ contributions to classified VC fundraising amounts. In the Invest Europe PE/VC fundraising statistics, the investor type “corporate investor” is defined as “corporations manufacturing products or delivering non-financial services” (Invest Europe, 2023a).

Source: Invest Europe, authors’ calculations

Corporates are also an important investor group in European VC funds. While they accounted for 5% of the total classified PE fundraising amounts in Europe in 2022, according to Invest

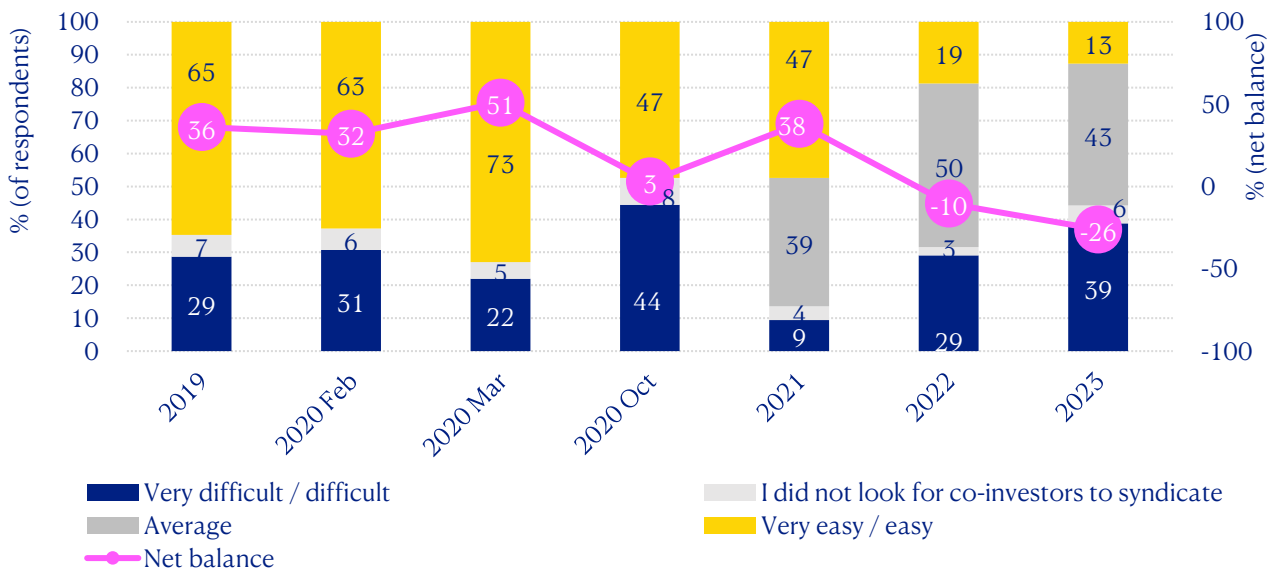
Europe data, their share is much higher in VC funds. In 2022, corporates contributed EUR 5.3bn to VC funds investing in Europe. This represented 23% of total VC fundraising (EUR 23.0bn) or 31% of the total classified fundraising amounts (EUR 17.4bn) and denotes a new record in terms of both corporate investment amounts in VC funds and the share of these investments over total VC fundraising.

One of the segments not covered under the Invest Europe PE/VC activity statistics are corporate acquisitions outside of dedicated corporate venture programmes (i.e. corporate VC investments directly off the balance sheet). European tech companies are often acquired by non-EU buyers. Based on an analysis of 3,600 EIF-supported seed and start-up VC investments from 1996 to 2015, Prencipe (2017) finds that about 50% of the performing EIF-backed European investees were acquired by non-European corporations, particularly from the US. This “raises the issue of whether the missing scale-up phenomenon in Europe could be linked to the lack of serial tech buyers, that is, incumbents in highly innovative and competitive sectors” (Prencipe, 2017). However, there are differences by sector; while US buyers are more technology-focused and mostly active in the ICT space, European buyers seem generally more specialised in Life Sciences.

Co-investment

Co-investment can be a useful feature of the PE/VC market by strengthening investment capacities. The availability of stable providers of co-investment capacity can be a benefit for VC fund managers when addressing potential investment opportunities.

Figure 29: Easiness to find co-investors to syndicate*



* Diagram shows the aggregated results for the EIF VC Survey questions “How easy/difficult is it currently to find co-investors to syndicate?”. Note: The “Average” response option was only provided since the 2021 survey wave. The “net balances” refers to the percentage of respondents reporting a positive response minus the percentage of respondents reporting a negative response.

The *EIF VC Survey* shows that a majority of European VC GPs perceived “finding co-investors to syndicate” relatively easy until approximately mid-2020 (Figure 29). In the October 2020 survey wave, respondents reported a less positive market sentiment with regard to co-investment opportunities, most likely due to the impact of the Covid-19 crisis. The market recovered again in 2021. In 2022, however, the share of positive responses to this survey question was, for the first time, lower than the share of negative responses, reflecting the difficult geopolitical situation and macroeconomic environment. In 2023, this negative development has continued. At the same time, expectations for the next 12 months have improved (Kraemer-Eis and Croce, 2023b).

4.1.2 | Business angels

As already mentioned, the Invest Europe activity data cover fundraising, investment and divestment from PE and VC firms in Europe. It does not cover segments outside the definition that Invest Europe applies for the collection of its activity statistics, e.g. business angels’ activities although it has gained importance as a financing source for early-stage start-ups.

Business Angels (BAs) represent an important class of PE investors, primarily consisting of high net-worth individuals, usually with entrepreneurial or managerial experience. BAs tend to invest their own money, either individually or in formal or informal syndicates, in businesses which are not publicly traded, commonly in exchange for convertible debt or ownership equity (see for a general description of BA financing, Kraemer-Eis and Schillo, 2011; OECD, 2011; BAND, 2016; and OECD, 2020). In a European Commission survey among European BAs, the large majority of respondents were male (89%) and the average age was 55 years (European Commission, 2017). In Central and Eastern Europe (CEE), BAs tend to be younger (average age of 43 years) and the share of female BAs is higher.

BAs differ from VC funds, which primarily invest third parties’ resources (e.g. institutional investors’). Angel-financed companies are typically in earlier stages of their development (Kraemer-Eis and Schillo, 2011). BAs’ transaction costs are relatively low, which allows them to invest on a smaller scale. They are geographically less concentrated than VCs and often invest in local markets. Moreover, BAs tend to be very ‘hands-on’ investors, providing also additional value-adding support beyond financing (e.g. mentoring, business advice and access to networks), hence they can play a central role in the start-up ecosystem, in particular for innovative firms (OECD, 2016). Moreover, entrepreneurial investors not only form the nucleus of the BA ecosystem, but possibly also the VC ecosystem at a later point in time, i.e. there is a potential to catalyse new institutional players even in relatively underdeveloped VC markets.

According to several studies, BAs have a positive impact on the growth of the firms they invest in, their performance and survival (Lerner et al., 2015; OECD, 2016). The success of the investees seems to be strongly based on the support beyond financing that BAs provide (Kerr et al., 2011). There is evidence that BAs are relatively resilient to changing market cycles (OECD, 2016), and angel investments in early-stage high-growth companies tended to increase during and after the GFC, as VC funds migrated to less risky investments (Kraemer-Eis, Lang and Gvetadze, 2013). In the Covid-19 crisis, preliminary evidence pointed to continued business angel investment in

start-ups, albeit at a strongly decreased number of deals (e.g. Benedetti Fasil et al., 2021). At the same time, BAs tended to focus more on companies with an experienced management team, revenue generating capability, and recurring revenue business models. *EIF Business Angels Survey* results also pointed to a decrease in the total amount available for BA investing (Kraemer-Eis, Botsari, Kiefer and Lang, 2021).

A large share of BAs co-invests with other early stage investors in order to diversify risks (OECD, 2016) and/or to improve their skillset and experience (Capizzi, 2015). Sourcing channels like crowdfunding platforms are also used by BAs – in particular by younger and less experienced ones – as tools to find investment opportunities, thereby allowing them to make investments in a wider geographical area (OECD, 2016).

However, there are difficulties in measuring the size of the business angel community, the main ones being identification and definition. BAs often stay anonymous and the details of their investments are rarely disclosed. Besides, there are “virgin” angels that have never actually invested but increase the number of BAs in the statistics. Others may have occasionally acted as angels but are no longer looking for investment opportunities. Still others may invest as entrepreneurs but do not consider themselves as being part of the “BA scene”. The so called “invisible market” makes a precise estimation of the angel market difficult. Some studies estimate that the invisible part of the market is up to seven times greater than the visible part (CSES, 2012), while others even estimate a multiplier of around ten (see, e.g., EBAN, 2014 and 2020). Since the publication of EBAN statistics for BA investing in 2021, EBAN has discontinued adding an assumed BA investment amount for the “invisible” part of the market to its aggregated BA investment statistics, as access to BA investment data has improved in recent years (EBAN, 2022). Identifying the overall size of BA investing is nevertheless still virtually impossible, and such difficulties must be borne in mind when describing the market.

Currently there is no robust and consistent data available on the Business Angel market in Europe; published data can only be used as indication or very rough estimate (see also (Benedetti Fasil et al., 2021, as well as OECD, 2016 and 2020b). For the visible market segment, data is collected by angel associations from angel groups and networks. Ad-hoc surveys contribute to increase the available level of information on BAs in Europe (see European Commission, 2017). In the following, we use such statistics keeping in mind its shortcomings (see, for example, the related EBAN disclaimer that we show in Box 5). Information on angel investing in different European countries can also be found in BAE (2015). Several waves of the *EIF Business Angels Survey* have looked into angel financing on a regular basis (see Botsari et al., 2022, for the results of the latest wave).

Box 5: Introductory information on EBAN data

Due to its nature, the early stage investment market and especially the BA segment is difficult to quantify. Investment activity can only be observed to the extent to which it is disclosed publicly or reported to an entity such as a local network or a national association. Historically, the EBAN statistics compendium has estimated the angel investment market applying a multiplier on the actual data collected, following the findings from a study commissioned by the European Commission in 2012 (see CSES, 2012). While further research is being conducted on the ratio between reported and un-reported angel investment activity, EBAN (2023) statistics focus only on the so-called “visible” market activity. Consequently, EBAN (2023) underestimates the overall investment activity that is taking place in a given European country as well as across the continent. EBAN (2023) comprises information collected through direct surveys from business angel networks, national federations and other early-stage investors. Additional data were collected from different sources, namely commercial databases, market reports, European Commission publications, national publications, press articles and research papers, and other early-stage actors in Europe.

Sources: EBAN (2023).

At European level, the European Business Angel Network (EBAN) reported a decrease in visible BA investment by 4%, compared to the year before, to an amount of EUR 1.4bn in 2022 (EBAN, 2023). The estimated number of visible investments increased by 13% to 5.7k. Hence, the average investment amount per BA [company] decreased to EUR 32k [EUR 259k]. The number of visible BAs is reported to be at 43.3k (an increase by 10% compared to the year before).

In terms of investment trends, especially in established BA markets (e.g., the UK, Germany, and France), EBAN (2023) reports a growing number of large BA investors, commonly referred to as “super angels”, who regularly invest more than EUR 500k per deal, often as sole investors, but also increasingly in small groups together with other BAs or alongside VCs. Syndication between local BAs, other BA networks and/or early-stage VCs is another trend observed (EBAN, 2023).

Most of the BA activity within the EU is happening in the UK, Germany and France. When comparing BA investment amounts to GDP, the picture looks different, with Estonia and Finland being on top of the ranking (EBAN, 2023). The majority of BAs target companies in their home country, but a considerable share of BAs stated that they would invest abroad if legal and fiscal legislations facilitated such activities (European Commission, 2017). In some countries BA co-investment funds, tax break or grant schemes do not support or even allow investment abroad (EBAN, 2018).

According to the results of the *EIF Business Angels Survey 2021/22*, ICT was the most important sector for BA investment (stated by 24% of respondents as their first most important target industry), followed by Business services (17%) and Biotech and healthcare (13%). However, 13% of respondents indicated that they have no specific sector focus. BAs often invest in sectors linked to their own professional experience. With regard to the investee companies’ development stages, pre-seed (44%) and seed (36%) investments were stated to be the most important ones, while a fifth of BAs stated early or later stages to be their main focus (see Botsari et al., 2022). Going forward, BA respondents stated investments in the area of ICT, Healthcare, Digitalization, Energy, Software as a Service (SAAS), Fintech, Medtech, Services and

2019). The relevance of co-investment with other BAs and VC funds has even increased, although finding such co-investors can be difficult (Kraemer-Eis, Botsari, Kiefer and Lang, 2021). In 2021 and early 2022, BAs stated that finding co-investors became generally easier again (Botsari et al., 2022).

Despite the opaqueness of this market, the available evidence indicates that business angels are of high economic importance for the financing of innovative early-stage companies. Government support of this market segment can therefore help to improve the availability of financing sources for young high-growth companies, in particular at the seed and early stages of their development (Benedetti Fasil et al., 2021; Mason and Harrison, 2013). However, policy measures have to be well targeted to the specific nature of BA investors. For example, based on the assumption that the supply of BA capital depends on investors who have already been successful entrepreneurs, Hellmann and Thiele (2017) identify a rationale for funding policies (a tax credit in their model) that allow entrepreneurs to retain a larger ownership fraction and create more entrepreneurial wealth in order to increase the future supply of capital and to create a long-term impact on entrepreneurial activity. Findings by Hellmann, Schure and Vo (2015) also suggest that public support for start-up financing should go beyond an exclusive support of formal VC, because additional policy measures for angel investors “would reach a different set of entrepreneurial companies that develop outside of the reach of venture capitalists”. Hence, “the central role of BAs is increasingly recognised by policy makers [...], and initiatives to support angel activities have expanded in recent years as part of a broader shift towards policies that aim to make equity-type instruments more widely available for start-ups and SMEs” (OECD, 2016). According to the OECD (2016), public-private co-investment schemes are able to catalyse the private market, “but only if the existing angel market is sufficiently well developed, so that a sufficient number of investor-ready deals can be financed and the government does not have to be overly engaged in matching supply and demand for early-stage equity”. In general, specific policy programmes related to business angel investment mainly consist of supply-side measures like direct public investments, co-investment between the private and public sector, tax incentives and government support to networks and associations (OECD, 2020). However, despite initiatives for more policy support and better framework conditions, including under the CMU action plan (Kraemer-Eis and Lang, 2017), there is still room for further market development. Moreover, the supply of entrepreneurial finance in Europe in general, but even more so as regards financing provided by BAs, is constrained by the geographical fragmentation of the European capital market. A recent study of BAs in Ireland identifies three constraints on cross-border investing: lack of information on cross-border investment opportunities, the preference of angels to invest locally, and tax incentives that are only available for investments in the BA’s own country (Mason et al., 2021). As a result of the differences between Europe and the US in terms of size and homogeneity of their respective capital markets, US BAs “invest in twice as many US companies as their EU counterparts in EU businesses” and “the size of US angels-backed transactions is approximately 1.7 times higher than EU transactions” (AFME, 2017). An overview of barriers to BA financing in Europe and recommendations how these could be mitigated are provided in AFME (2017). As European angel activity has been expected to increase with more successful exits observed in Europe (key actors of successfully exited companies can be expected to turn into future BAs), the deterioration of the exit markets since 2022 is a cause for concern for the growth of angel investing in the near future.

4.2 | Fundraising activity

In 2022, total funds raised by PE firms located in Europe increased by 30%, compared to the year before, to a new all-time high of EUR 170.3bn (Figure 31). The increase was driven by positive developments in almost all market segments, i.e. growing amounts raised by Buyout funds (+44% to EUR 110.9bn), which represent the largest part of the PE market, and Generalist funds (+8% to EUR 7.3bn) as well as skyrocketing Mezzanine funds (+1,044% to EUR 8.5bn).²⁵ Fundraising by growth capital funds declined (-20% to EUR 20.7bn).

Box 6: Invest Europe's definitions of fund stage focus

Buyout fund: Funds acquiring companies by purchasing majority or controlling stakes, financing the transaction through a mix of equity and debt.

Generalist fund: Funds investing in all stages of PE.

Growth fund: Funds that make PE investments (often minority investments) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Mezzanine fund: Funds using a hybrid of debt and equity financing, comprising of equity-based options (such as warrants) and lower-priority (subordinated) debt.

Venture Capital funds:

Early-stage fund: VC funds focused on investing in companies in the early stages of their lives.

Later-stage fund: VC funds providing capital for an operating company which may or may not be profitable. Typically in C or D rounds.

Venture fund (all stages/ dual focus): VC funds focused on both early and later stage investments.

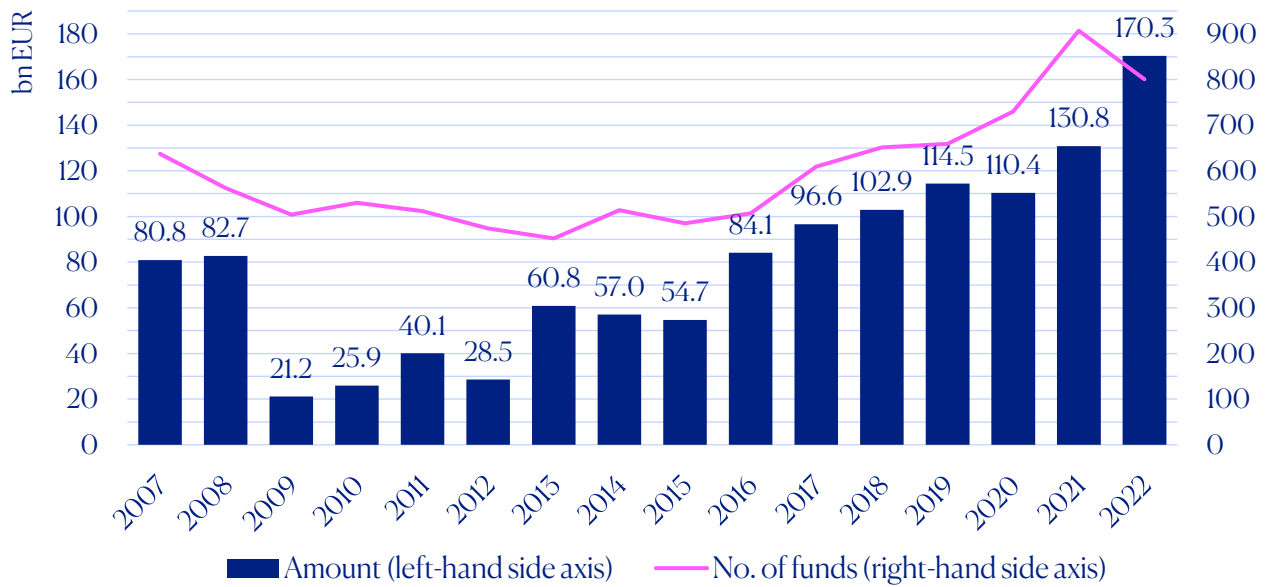
Source: Invest Europe (2023a)

In the VC segment, fundraising increased by 13% to EUR 23.0bn (Figure 32). This constitutes the highest European VC fundraising level ever reached.²⁴ While funds with a focus on the early stage (+30% to EUR 9.7bn) and funds with a focus on the later stage (+112% to EUR 3.5bn) raised considerably higher total volumes, funds with a dual focus on all venture stages (-13% to EUR 9.7bn) recorded a strong decrease. Fundraising linked to final closings (total venture, amounts raised since inception) was at EUR 14.2bn 2022, which denotes a decrease by -6% compared to 2021.

²⁵ Box 6 provides an overview of the Invest Europe fund stage focus definitions. See Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs (2021) for an overview of listed PE in Europe.

²⁴ Invest Europe started publishing fundraising by fund stage focus in 2007.

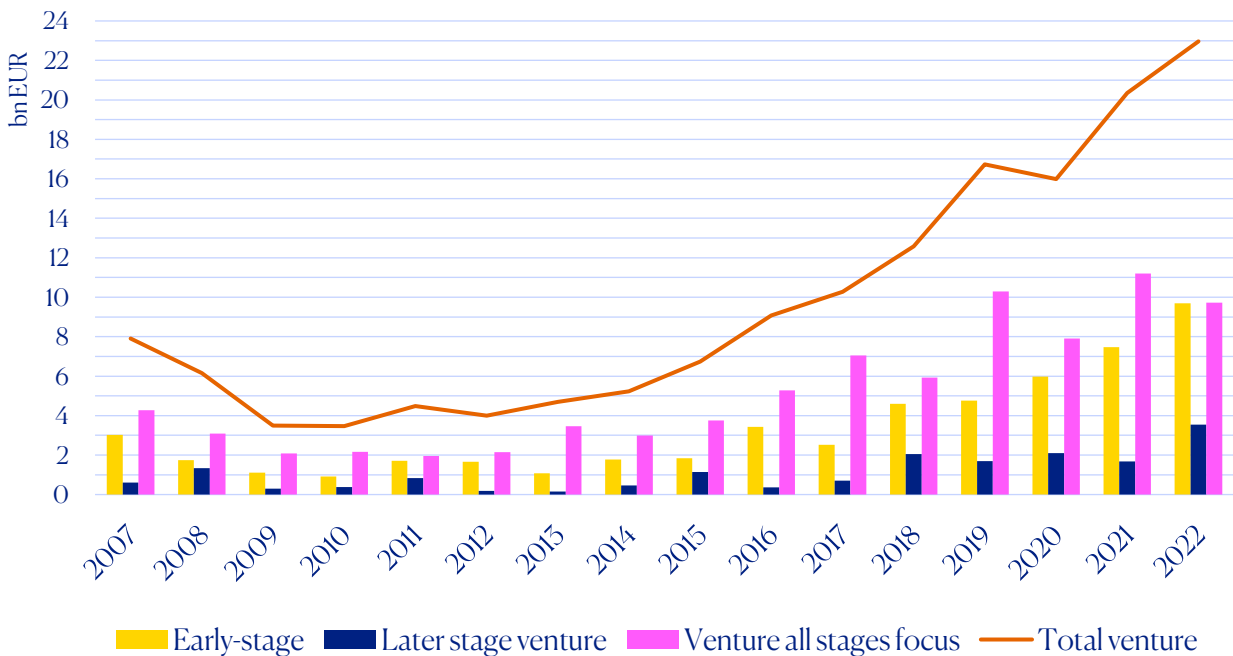
Figure 31: Private equity fundraising*



* Amount = Incremental amounts raised during period by PE funds located in Europe. No. of funds = Number of PE funds located in Europe and raising new capital during period.

Source: Invest Europe, authors' calculations

Figure 32: Amounts raised by VC funds located in Europe*

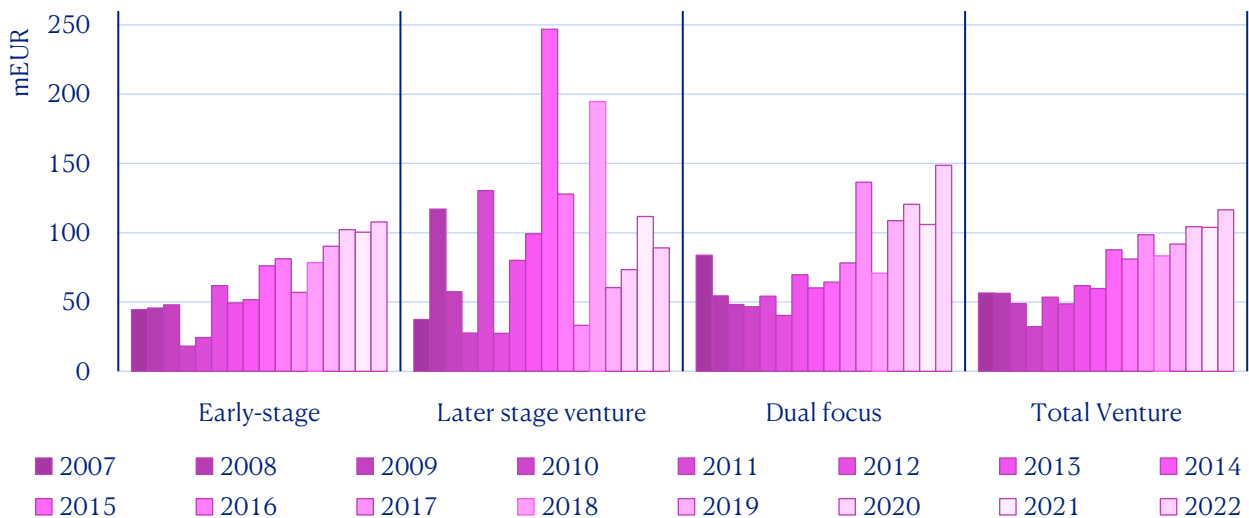


* Incremental amounts raised during period.

Source: Invest Europe, authors' calculations

In 2022, the average size of VC funds closed within the year increased by 12% to EUR 116m (Figure 33). This amount constitutes the highest value ever registered in the Invest Europe statistics since 2007. The average size increased for funds with a focus on early-stage investments as well as for funds with a dual focus on all venture stages. In contrast, the average size of funds that target later-stage investments decreased. At the same time, the number of final venture fund closings decreased from 146 to 122 in 2022.

Figure 33: Average VC fund size (at final closing; cumulative amounts raised since inception)*



* The results for 2022 are based on 122 final VC fund closings (64 funds with an early-stage focus, 22 funds with a later stage focus and 36 venture funds with a focus on all stages).

Source: Invest Europe, authors' calculations

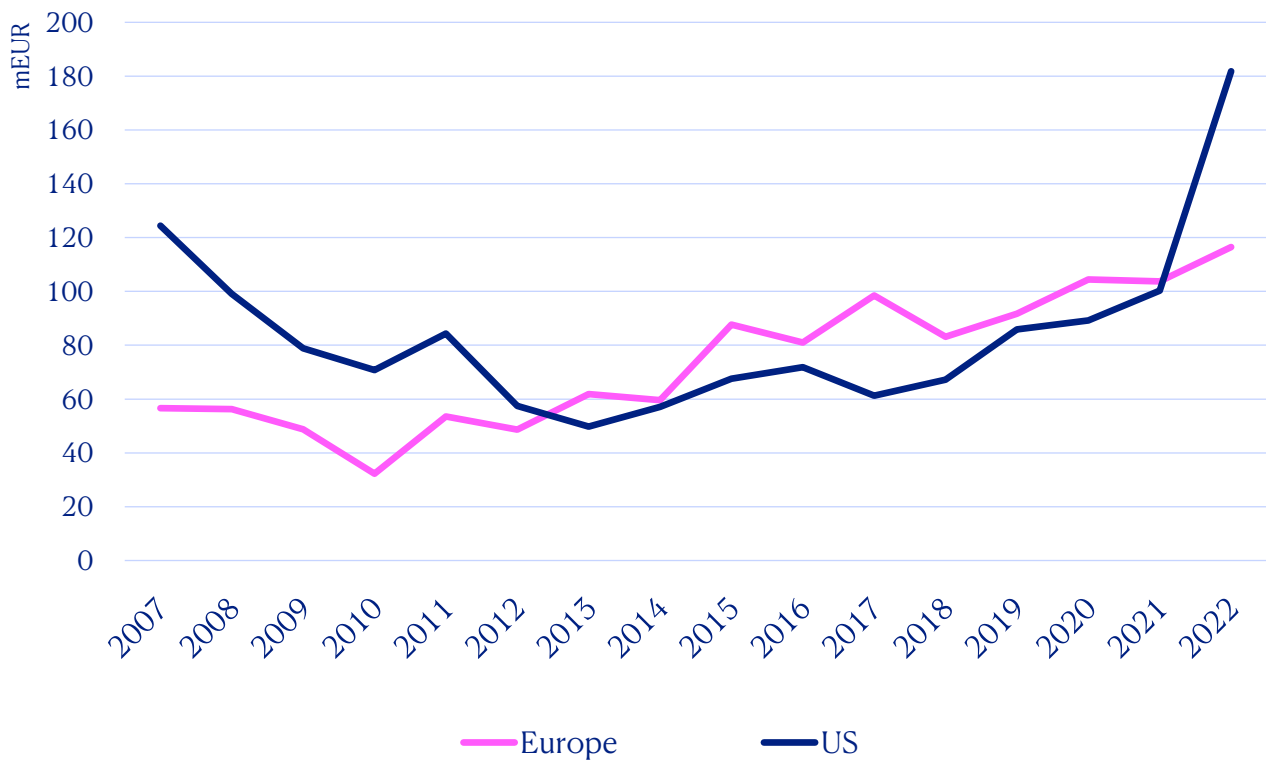
Given some evidence in previous studies, which indicated that small fund size was one of the reasons for poor European VC performance (Kelly, 2011), the general trend of increasing average VC fund sizes might mean positive news. Europe had also managed to catch up with the US and to even slightly overtake in terms of the average venture fund size between 2013 and 2020 (Figure 34). However, this had largely been driven by funds located in the UK (average size of EUR 141m in 2020), while EU venture funds are still lagging behind (average fund size of EUR 104m in 2020), according to Invest Europe data.

The results are biased by a relatively large group of VC funds in the US that are considerably bigger than their peers in the set of “large funds” in Europe. While NVCA/Pitchbook fundraising figures for 2022 show 74 US venture funds that are larger than USD 500m, Invest Europe/EDC statistics show only 3 funds of a similar size that performed a final closing in Europe in 2022. While such figures can only be interpreted as an approximation of the “gap” between European and US funds, as underlying definitions for the collection of European and US data are not always identical, it is visible that Europe has a considerable lack of large venture funds.

Moreover, the relatively small number of late stage venture fund closings at still comparatively small sizes is worrying with regard to the financing needs of innovative companies with high-

growth potential. In contrast to early stage funds, the average size of later stage venture funds in Europe did not show a clear upward trend over the last years.

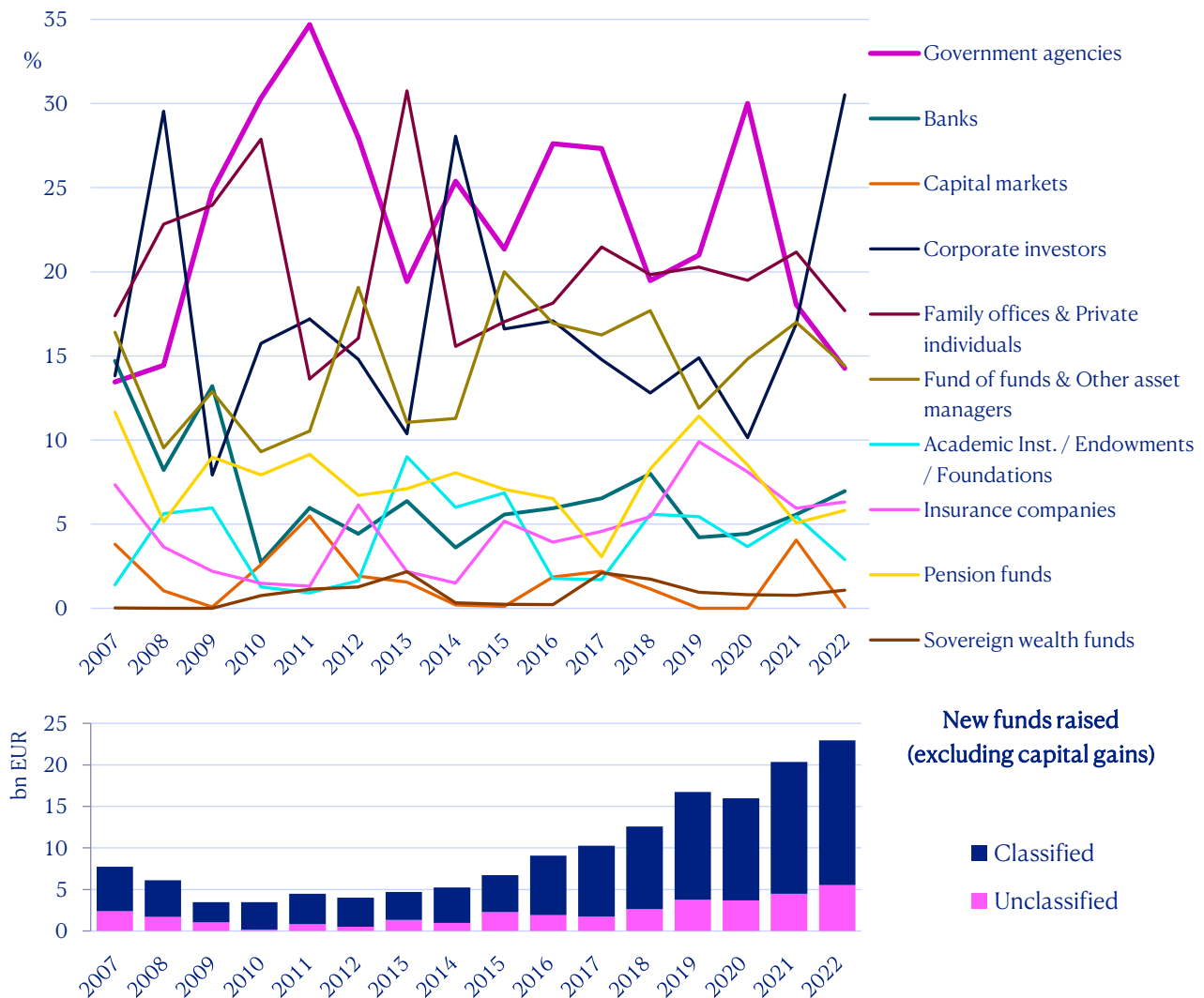
Figure 34: Average VC fund sizes in Europe and the USA



Source: Invest Europe, NVCA, authors' calculations

EIF's internal analysis suggests that larger funds are often managed by teams that previously had smaller funds that performed well. Invest Europe statistics also show an upward trend in terms of the number of follow-on VC funds over the years. Thus, the size could be a consequence rather than a cause of a good performance. Larger fund size would be a sign of more successful GPs and more careful due diligence by LPs, which may indicate that achieving a larger fund size is associated with a certain market validation. Helping promising teams in demonstrating their investment skills and getting market validation in a smaller first-time fund (as long as the fund size is not inefficiently small) is consequently a way to help with the next fundraising of such manager, and hence the VC ecosystem.

Figure 35: Investor base: Share of government agencies in VC fundraising*



* Percentage of incremental amounts raised during year (in contrast to final closings only). Excludes capital gains. Unclassified sources of funds have been extrapolated.

Source: Invest Europe, authors' calculations

The European VC ecosystem benefitted substantially from market-stabilising public intervention during and after the Great Financial Crisis, when investors exhibited a cautious sentiment for risk capital. Since 2012, a normalisation has set in, although public support still plays an important role for further market development. However, even during the Covid-19 crisis, the share of government agencies investment in VC funds has not peaked anymore. These changes are visible in the variations of the investor base during the past years (Figure 35). According to Invest Europe figures, the share of government agencies' contribution to VC fundraising increased from 13% in 2007 to 35% in 2011, before it came down again in the subsequent years. In the exceptional Covid-19 crisis year of 2020, the share of government agencies' investment in VC funds increased again and reached a level of 30%. In 2021 and 2022, the market relevance of government agencies decreased again.

Even if a very high importance of government agencies is unsatisfying for the long term, it is noteworthy that government agencies have played their role and supported the market in a counter-cyclical way, not only during the Covid-19 crisis, but even more so during the Global Financial Crisis, when total VC fundraising levels more than halved. This led almost “naturally” to an increased share of government agency fund investors. Moreover, the contributions of public investors to VC funds increased not only in relative but also in absolute terms, i.e. from an average EUR 0.7bn p.a. in 2007-2009 to, on average, EUR 1.3bn in the years thereafter. In 2020, the total volume contributed by government agencies to VC fundraising amounted to EUR 3.7bn, which constituted an increase by 35% compared to the year before.

Theoretical evidence and EIF’s own research suggest that public VC support is relatively well targeted and achieves positive effects in Europe. In a study of investment patterns of different VC investor types, Bertoni, Colombo and Quas (2015) find that governmental VC (GVC) investors in Europe specialise in investments that do not attract private investors due to high information asymmetries and high failure risk, i.e. in particular in young, small seed-stage companies, and in certain sectors such as biotechnology and pharmaceuticals, in which time to market are long and new product development is very costly. This indicates that “in Europe, GVC has filled the entrepreneurial financing gap left by private VC investors”.

In order to put EIF’s activity in context, some calculations can be taken into account that were performed by Kraemer-Eis, Signore and Prencipe (2016), which shed more light on the impact of EIF on the VC ecosystem. The authors estimate that the VC investment activity backed by EIF represented 41% of total VC investments in Europe in 2014 (29% in 2007). The share directly attributable to EIF amounts to 10% (5% in 2007), which shows the significant leverage that characterises EIF-backed investments. With regard to fundraising, the authors estimate that volumes backed by EIF in 2014 amount to 45% of the overall volumes collected by European VC investors (36% in 2007), against a share directly attributable to EIF totalling 12% (5% in 2007).

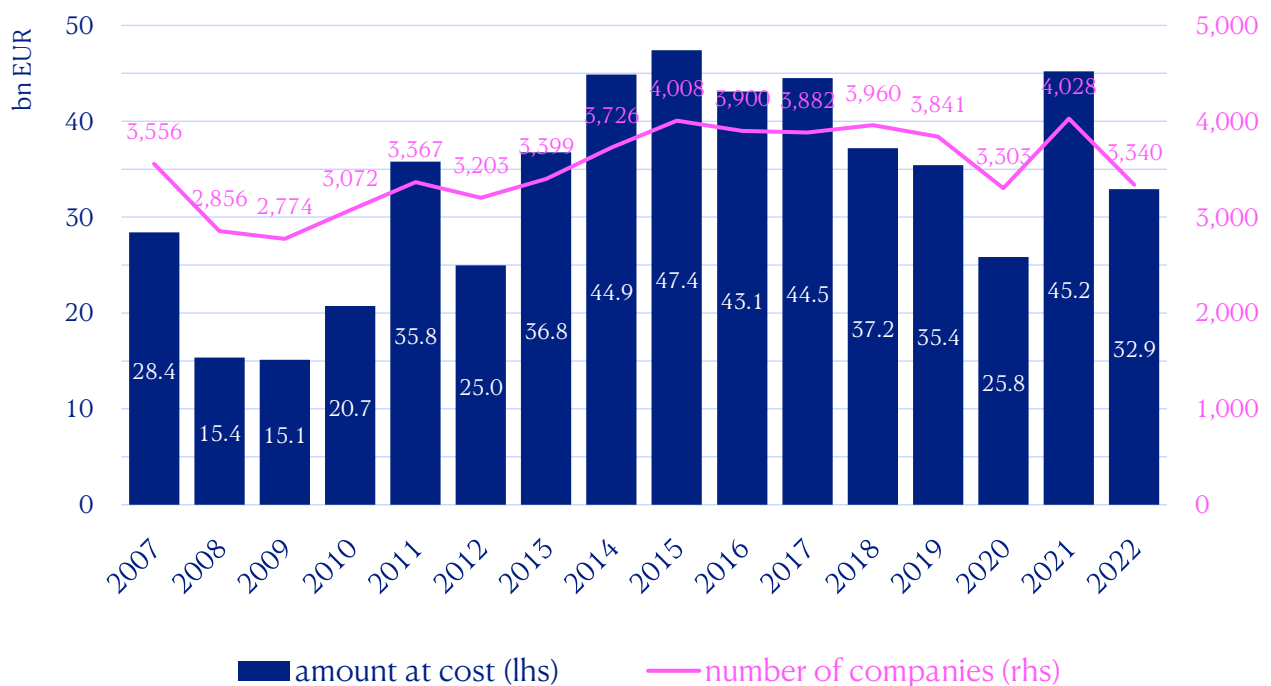
Moreover, EIF is supporting a relatively high number of first-time teams and many VC funds in which EIF invested successfully managed to close at their full target size. It is also important to see that many of the more established VC funds, pillars of Europe’s VC market today, would not be there without having been kick-started by EIF. This clearly indicates EIF’s catalytic role for European VC, rather than a crowding-out effect. This view was confirmed in the *EIF VC Survey*, which showed a high added-value of EIF’s activities and a generally positive perception of public support in the European VC market (Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018). Results of the recent *EIF Private Equity Mid-Market Survey* show similar outcomes for EIF’s added value in the European PE mid-market (Kraemer-Eis, Botsari, Lang, and Mandys, 2021). An Unquote Intelligence (2014) survey among General Partners (GPs) and Limited Partners (LPs) found that “the overriding benefit of [public funding bodies’] (PFB) money is the crucial role it plays in attracting other investors”. Moreover, “[h]aving PFB money in a fund does not deter other LPs from committing”.

4.3 | Divestment activity

In 2022, the exit market suffered a setback. The total PE divestment value decreased by 27% to EUR 32.9bn, which constitutes the second lowest level since 2013 (Figure 36).²⁵ The number of companies divested dropped by 17% to 3,340 in 2022.

The slump in the total divestment amount in 2022 was mainly due to substantially lower activity in the buyout (-31% to EUR 22.5bn) segment of the market, but also divestments in the growth (-13% to EUR 7.2bn) and venture (-11% to EUR 2.7bn) capital segments decreased.²⁶

Figure 36: Total PE divestments (by amount at cost) of European portfolio companies



Source: Invest Europe, authors' calculations

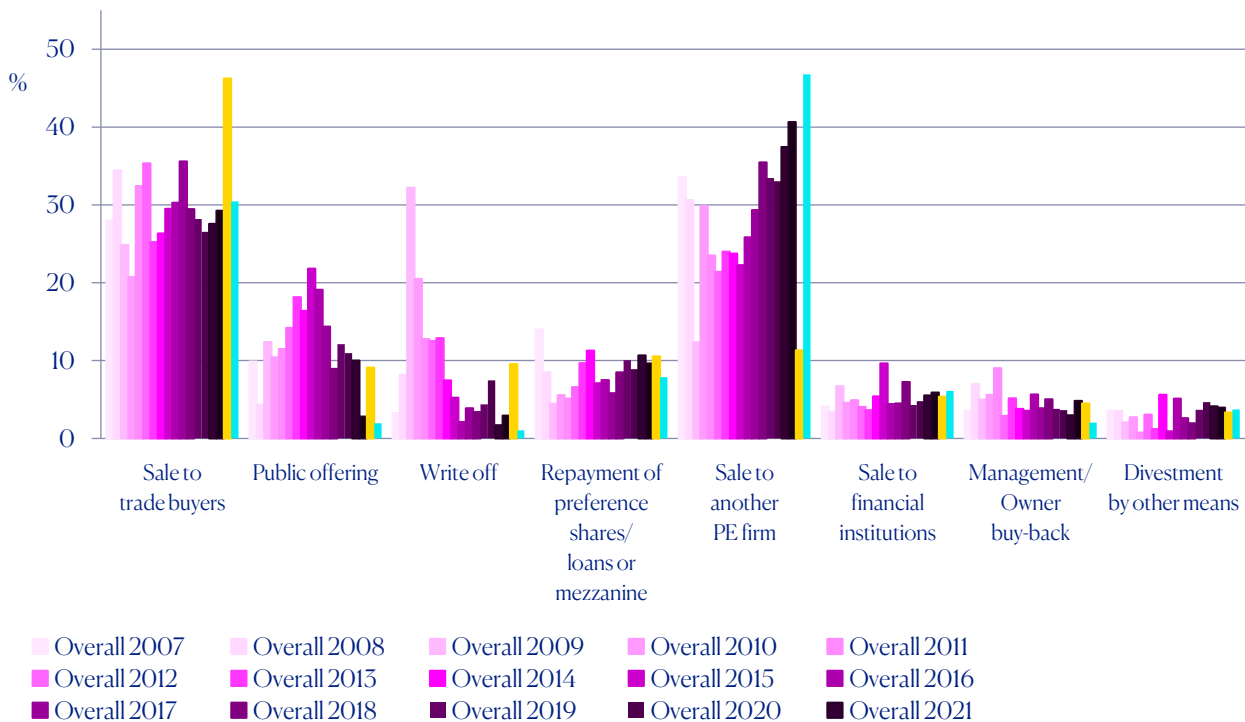
The relative importance of write-offs has remained at comparatively low levels over the past decade. As regards overall PE, the percentage of write-offs over total divestment amounts had strongly decreased between 2010 and 2016, before the trend reversed in 2017. However, despite a jump in 2020, the figures were still far below the values reached in the aftermath of the Great Financial Crisis. The level even reached a record low of 1.7% in 2021, before increasing to 2.9% in 2022, due to the difficult macroeconomic environment (Figure 37). Trade sales and sales to another PE house together accounted for more than two thirds of the total PE divestment

²⁵ Invest Europe statistics show divestment amounts at cost, i.e. the total amount divested is shown as the total amount that had been previously invested, not including any profit on the investment.

²⁶ The numbers for venture, growth and buyout capital divestments do not sum up to total PE divestments, as total PE divestments also include the rescue/turnaround and replacement capital market segments.

amounts in 2022. The share of public offerings slightly has decreased since 2020.²⁷ In the VC market, the relative importance of write-offs increased to a level of 9.6% in 2022. This is, however, still the second lowest level since the start of the Invest Europe statistics in 2007. While the share of public offerings over total venture exits decreased to 9.1%, the percentage of trade sales reached its second highest level ever at 46.2%.

Figure 37: Divestment routes (amount divested at cost; percentage of total)*



* “Overall” figures are *not* the weighted average of the “buyout” and “venture” figures, as they also include the growth, rescue/turnaround and replacement capital market segments.

Source: Invest Europe, authors’ calculations

Box 7: Invest Europe definition of exit routes

Management/ Owner buy-back: The buyer of the company is its management team.

Public offering:

First divestment following flotation (IPO): The sale or distribution of a private company’s shares to the public for the first time by listing the company on the stock exchange.

Sale of quoted equity post flotation: It includes sale of quoted shares only if connected to a former PE investment, e.g. sale of quoted shares after a lock-up period.

²⁷ In the Invest Europe data, the category “Public Offerings” includes first divestment following flotation (IPO) and sale of quoted equity post flotation.

Box 7 continued:

Repayment of preference shares / loans or mezzanine: If the PE firm provided loans or bought preference shares in the company at the time of investment, then their repayment according to the amortisation schedule represents a decrease of the financial claim of the firm into the company, and hence a divestment.

Sale to another private equity firm: The buyer of the portfolio company is a PE firm.

Sale to financial institution: A financial institution is an entity that provides financial services for its clients:

Depositary institutions: deposit-taking institutions that accept and manage deposits and make loans, including banks, building societies, credit unions, trust companies, and mortgage loan companies.

Contractual institutions: Insurance companies and pension funds.

Investment institutions other than direct PE firms.

Trade sale: The sale of a company's shares to industrial investors.

Write-off: The value of the investment is eliminated and the return to investors is zero or negative.

Note: Recapitalisations are not considered in the divestment statistics.

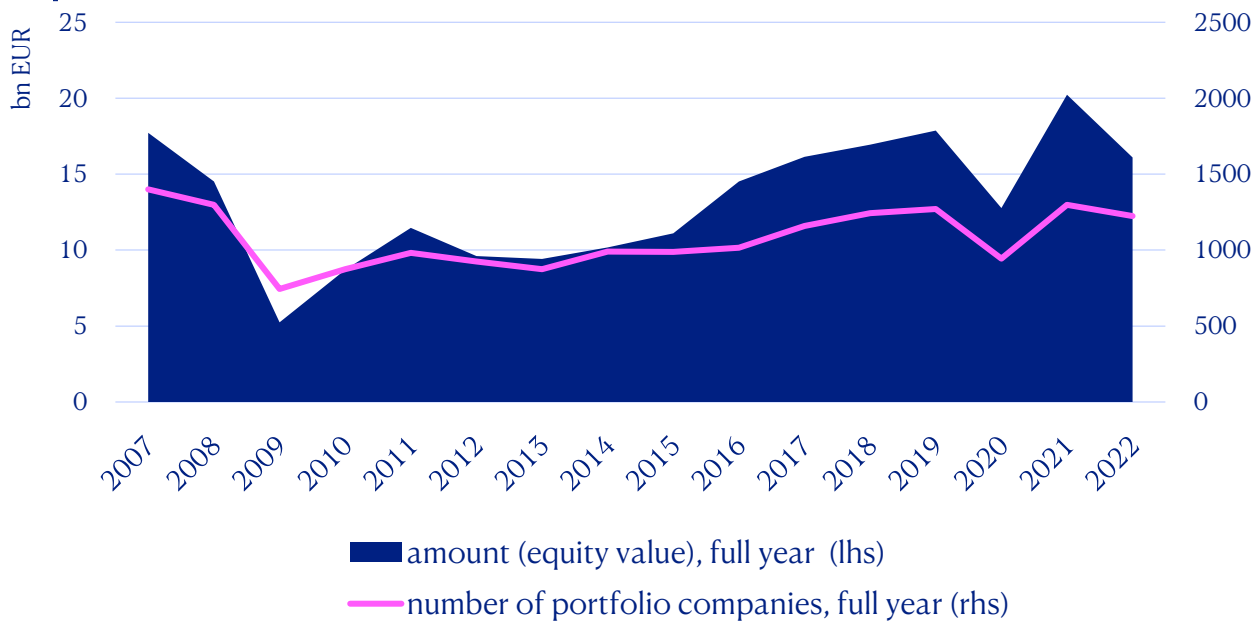
Source: Invest Europe (2023a)

4.4 | Lower mid-market and hybrid debt/equity finance: an important market segment

Following EIF's definition (see EIF, 2019), the PE lower mid-market (LMM) covers fund strategies targeting equity and mezzanine investments at growth and buyout stages and with a particular focus on SMEs. EIF provides its core LMM products (equity, hybrid debt-equity²⁸ and private debt) as alternative sources of long-term finance to established businesses and later-stage technology companies (see Box 8 for more information on private debt financing). In the current market context, a full range of equity products combined or not with a debt component continue to prove successful, particularly for shareholding reorganisation, organic and external growth, restructuring or expansion.

²⁸ Hybrid debt-equity/mezzanine finance is a diverse asset class in between traditional senior debt and equity instruments. According to the OECD (2014), "this form of finance has not received as much public attention as VC or specialised exchanges for SMEs, but it holds potential to respond to [...] critical problems in SME finance."

Figure 38: Small and lower mid-market buyout equity investments in European portfolio companies*



* In the Invest Europe statistics, buyout investment sizes below EUR 15m are defined as small buyout investments. Buyout investment sizes between EUR 15m and EUR 50m are classified as lower mid-market.

Source: Invest Europe, authors' calculations

Small and lower mid-market buyout investments in European portfolio companies have been negatively impacted by the current difficult macroeconomic environment. Investment amounts (equity value) dropped by 20% to EUR 16.1bn in 2022 (Figure 38). At the same time, the number of companies financed fell by 6% to 1,225.

In 2023, the market sentiment deteriorated further. Apart from the geopolitical uncertainty and related consequences, PE mid-market fund managers are currently very concerned about fundraising perspectives, portfolio company performance and the overall exit environment, according to the results of the *EIF Private Equity Mid-Market Survey 2023* (Kraemer-Eis and Croce, 2023a). The difficult geopolitical and macroeconomic environment, with still elevated inflation, on average, in the course of the year and increased interest rates, has had a negative impact on the operational margins of small businesses. The current uncertainty at the geopolitical level and the difficult macroeconomic situation directly affects the private equity industry. More specifically, the “end of cheap money” has had negative effects on the fundraising perspectives of even some performing fund managers, and the exit environment is also affected by detracted liquidity. While the still comparatively high levels of dry powder might signal a more cautious approach by PE firms by maintaining capital reserves for a market recovery (Invest Europe and Arthur D. Little, 2023), they could also continue to support investment volumes.²⁹ Looking forward, the *EIF Private Equity Mid-Market Survey* results show that PE mid-market investments are expected to increase in the near future (Figure 39).

²⁹ See Invest Europe (2023b) for an overview of statistics on dry powder in European PE funds.

Figure 39: Expected new PE mid-market investments over the next months*



* The diagram shows the aggregated responses for the *EIF Private Equity Mid-Market Survey* question “Over the next 12 months, how do you expect the number of your new PE mid-market investments to develop?” The figure depicts net-balances, which refer to the percentage of respondents stating that they expect the number of their new PE mid-market investments to slightly/strongly increase minus the percentage of respondents stating that they expect the number of their new PE mid-market investments to slightly/strongly decrease.

Source: *EIF Private Equity Mid-Market Survey; Kraemer-Eis and Croce (2023a)*

Box 8: Private debt funds³⁰

Private debt, or direct lending, funds have gained importance as an alternative asset class for investors and a new financing source for SMEs and mid-caps in recent years. Similar to PE, private credit funds are operated by alternative investment fund managers, originating SME lending opportunities and providing funding in the form of debt, rather than equity. These managers or “alternative lenders” are a diverse and expanding group that includes established and emerging asset managers, asset management subsidiaries of larger financial institutions, and even crowdfunding or digital platforms. Private debt has similarities and differences with bank financing, often complementing traditional bank financing and contributing to an increase as well as a diversification of funding opportunities.

³⁰ The content of this text box is mainly based on OECD (2018), OECD (2019) and EIF market information.

Box 8 continued:

Commercial banks tend to operate on the low risk (low yield) end of the spectrum, while alternative lenders cover the entire spectrum and provide businesses with a broader choice of debt financing options (tailor-made timely funding solutions), particularly for company growth and development. Private debt markets are better placed to deal with long-term funding risk than banks, inter alia because closed-ended investment funds are funded by long-term commitments from institutional investors. However, firms tend to blend these two sources of finance to close their financing gaps, indicating that banks can utilise alternative lenders to meet customers' financing needs, still remaining focused on less capital-intensive products and services, which is an added source of revenue, as well as to retain the primary customer relationship.

The European private debt market which originally arose as an appendage of the PE market is now a stand-alone market section. The alternative lenders range from larger asset managers diversifying into alternative debt to smaller funds newly set up by ex-investment professionals (Deloitte, 2023). Several years after the start of the private debt raise, the market segmented into several main alternative asset classes: (i) Senior loans and unitranche, (ii) Mezzanine / Subordinated loans / Hybrid debt-equity, (iii) Venture Debt and (iv) Marketplace lending. Some already well established managers are also raising different funds offering products with different level of seniority (i.e., senior loans, subordinated loans, etc.). Another product segmentation which appears more and more visible in the private debt market is the one between (i) managers targeting sponsored transactions (i.e. financing of a transaction with a financial equity sponsor) and (ii) managers targeting sponsor-less transactions (i.e. financing of a transaction without equity sponsor).

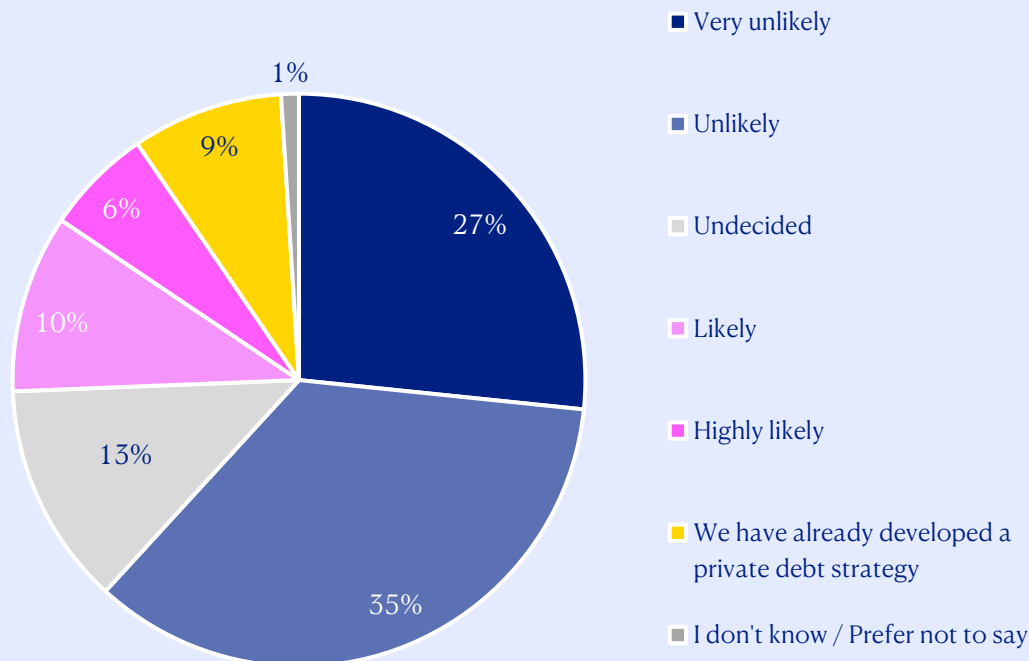
A substantial part of the private debt market still remains "sponsored", which means that it is the leverage component of a transaction (inter alia for investment or growth purposes) containing both equity (provided by a PE fund) and debt (provided, among others, by a private debt provider). Nevertheless, the share of the European sponsor-less activity over total transactions is also considerable and stood at 15% in 2022 (Deloitte, 2023). Adopting a sponsor-less investment approach could create a competitive advantage especially for those smaller-sized funds targeting SMEs.

In Europe, the EIF aims at enhancing the access to finance of SMEs, inter alia through debt funds, which focus on the lower end of the market. See Kraemer-Eis (2014), Kraemer-Eis et al. (2016), as well as the EIF website, for more information on this topic. The *EIF Private Debt Survey*, which was performed in 2021, has improved market insight gained by EIF. The survey results showed that, among private debt fund managers, competition with other market players (mainly debt funds and banks), fundraising and concerns about deteriorating credit quality were the most frequently stated challenges. Further survey results suggested that ESG-related challenges will become more important (Kraemer-Eis et al., 2022a; Kraemer-Eis et al., 2022b).

Results of the *EIF VC Survey* and the *EIF Private Equity Mid-Market Survey (EIF PE MM Survey)* show that securing debt financing has become a bigger challenge for portfolio companies of VC and PE mid-market fund managers in 2022 and 2023. At the same time, PE MM fund managers' perception of competition from banks or other debt providers in the PE mid-market business decreased. This situation could, in principle, open room for additional alternative debt providers. In the *EIF PE MM Survey*, approximately a quarter of the PE MM fund managers either stated that their PE firm has already developed a private debt strategy (9%) or consider it (highly) likely (16%) that their firm will develop such a strategy in the next 5 years.

Box 8 continued:

Figure: Probability of developing a private debt strategy



EIF PE Mid-Market Survey 2023 question “How likely would it be for your firm to develop a private debt strategy within the next 5 years?”

Source: EIF Private Equity Mid-Market Survey 2023; Kraemer-Eis and Croce (2023a).

Introducing an appropriate legal and regulatory environment and creating a level playing field for private debt activities as well as (regulatory and other) measures to enhance the investments of public and private investors (in particular large institutional investors) in alternative asset classes, incl. debt funds, could help to broaden the supply of funding sources, including private debt funds, that are available for SMEs (Peridis, 2022, compares lending risk management and regulatory tools in banks and alternative investment funds, with a particular focus on alternative lending funds.)

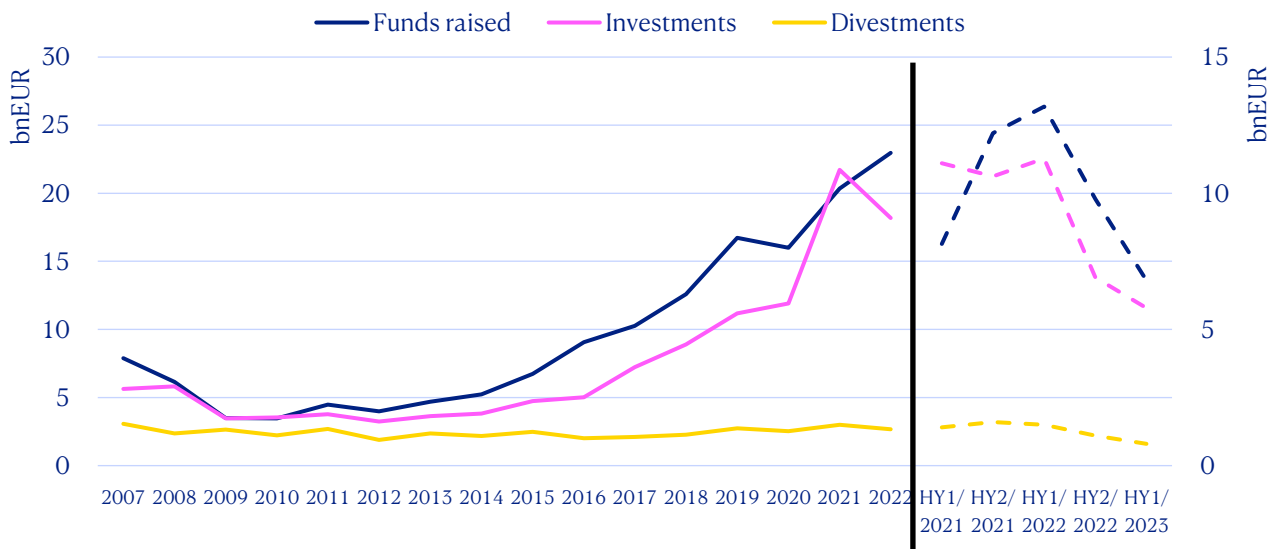
4.5 | Private equity prospects

4.5.1 | Current situation, risks and market actors’ concerns

Following the severe crisis of European PE and VC markets in the years 2008-2009 and beyond, remarkable positive developments have been observed in the subsequent years. Also during the Covid crisis, despite the measurable harm of the initial 2020 lockdowns, the VC and PE industry

did not suffer for a longer term. By the end of 2020, VC firms under strict lockdown had caught up in terms of activity rate (both in deals and volumes) with their no-lockdown benchmark (Crisanti et al, 2021; Kraemer-Eis, Botsari, Gvetadze, Lang, and Torfs, 2021). In 2021, many market activity indicators recorded another record year for European PE/VC. Since the second half-year of 2022, however, the market activity has decreased, and this has also continued in 2023 (see the right-hand side part of Figure 40).

Figure 40: Latest developments of VC market activity in Europe



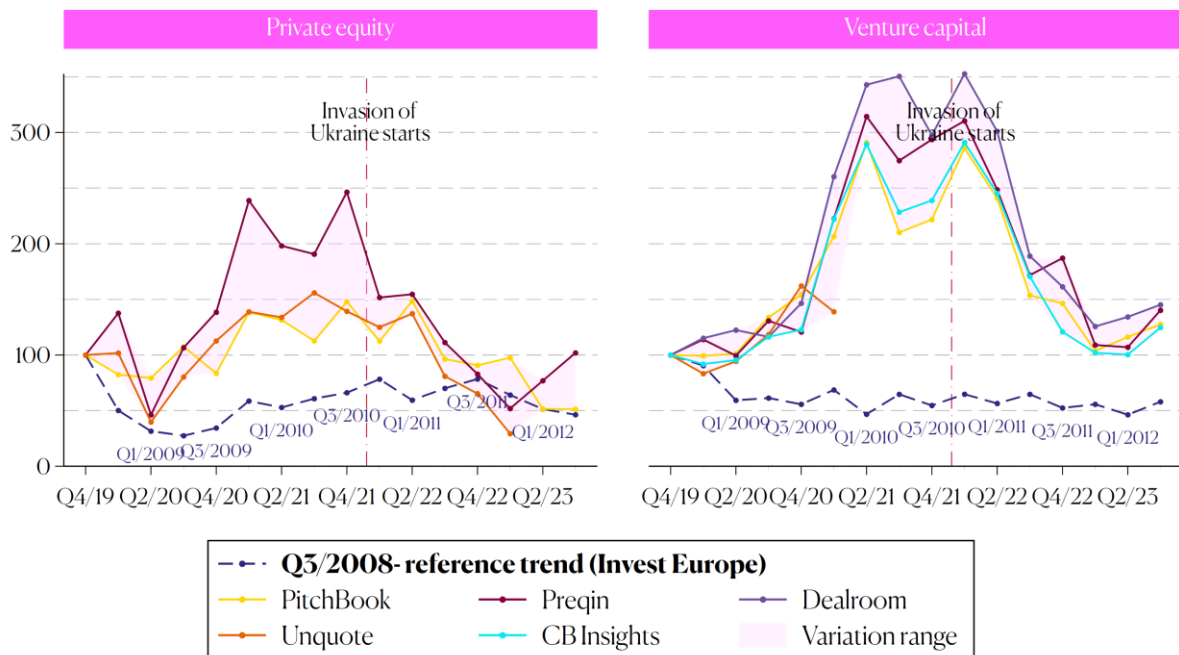
Source: Invest Europe, authors' calculations

Figure 41, which shows the European PE/VC activity during and after the Covid-19 recession vs the activity during the global financial crisis (GFC), confirms that a positive market trend had continued at the beginning of 2021. While VC markets are still largely “opaque”, and no single data provider can be used as an “oracle”,⁵¹ competing data sources (almost) unanimously find that the European PE/VC activity during Covid-19 was not hit as hard as during the GFC. In fact, activity levels in Q1/2021 were higher than pre-crisis (Q4/2019). PE in particular was hit worse than VC, but performed an impressive recovery from Q3/2020 onwards. European VC did not fall significantly in Q2/2020, and had a significant increase in Q3/2020 onwards.

However, roughly since Q3/2021 many activity indicators have started to show less positive growth rates or even downturns. Figures for 2022 and the first half of 2023 show stronger decreases in market activity. While different data providers seem to agree on a marked drop in investments, it should be noted that the true size of this drop may only be assessed in several months' time, as reported figures stabilise due to the data collection lag and market opaqueness. Since the third quarter of 2023 (and even earlier in the case of some data providers), the available market information shows a turnaround for VC investments. Signals for positive growth rates (or at least a stabilisation) are also visible for PE investments.

⁵¹ Figure 41 highlights the significant divergences in reported trends across different data providers. The discrepancies in reported activity levels are even larger, reflecting the unresolved issue of data opaqueness in the European PE/VC market,

Figure 41: European PE/VC activity since the Covid-19 crisis vs during the global financial crisis: Indexed real PE/VC investments in Europe (Q4/2019 = 100), by data provider*



* Real investments mean nominal activity values deflated with the gross fixed capital deflator for the EU. Unquote VC data not shown for periods after Q1/2021, as those data strongly deviate from the other sources.

Source: CB Insights, Dealroom, PitchBook, Preqin, Unquote, authors' calculations

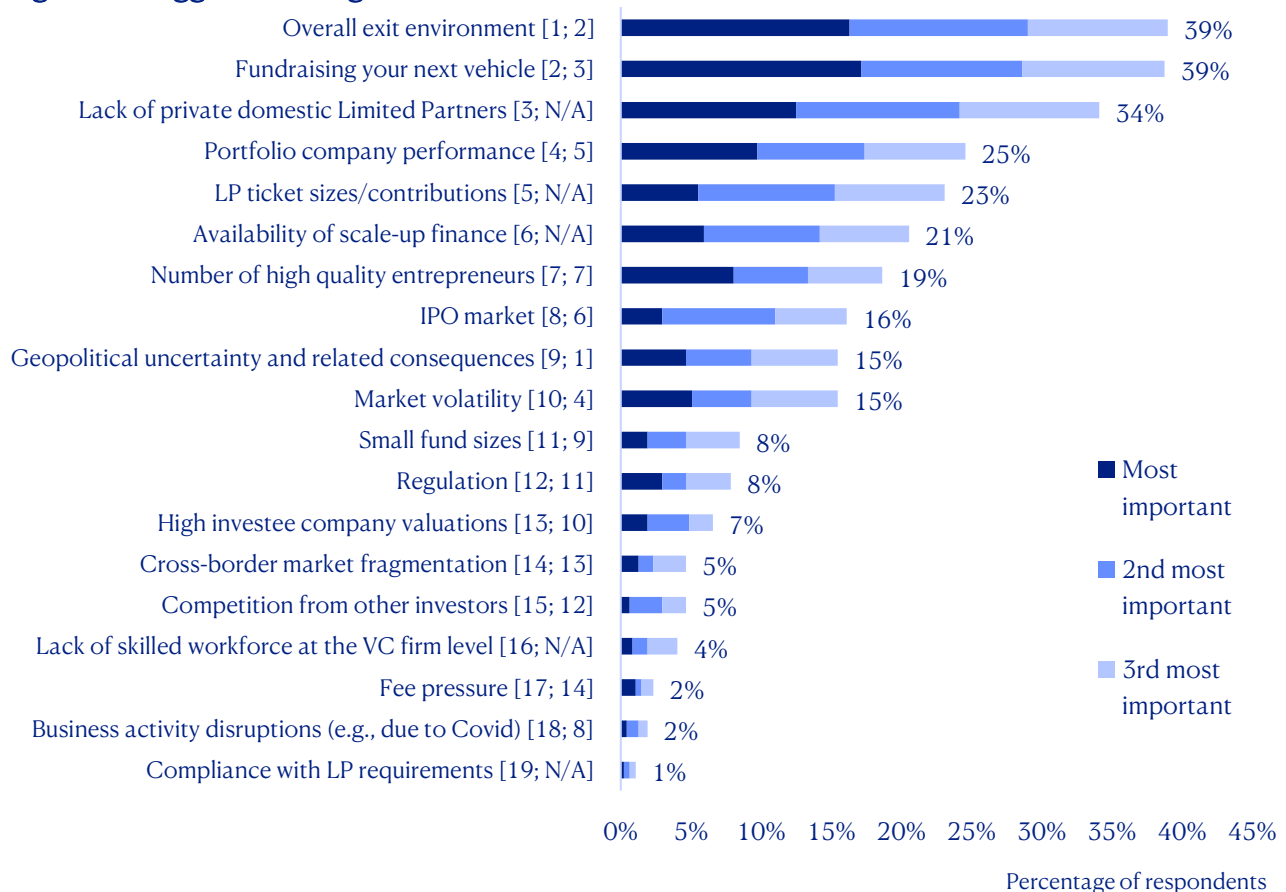
The drop in market activity since 2022, as well as signals for a recent positive turnaround, are also reflected in the results of the 2023 waves of the *EIF VC Survey* and the *EIF Private Equity Mid-Market Survey*. In a nutshell, they clearly suggest that market activity deteriorated further in the first half-year of 2023. At the same time, the survey respondents' expectations for the second half of 2023 and the first half-year of 2024 were optimistic.

With respect to the market situation in 2023, approximately seven in ten surveyed VC and PE MM fund managers shared gloomy perceptions of the fundraising environment. In parallel, the pace of new investments slowed down considerably. Consistent with these observations, the vast majority of respondents reported no further increase in competition among investors and a decrease in transaction prices. Following the market correction in terms of valuations, high investee company valuations were no longer considered to be a prominent challenge.

In many categories, the sentiment among VCs was considerably worse than among PE fund managers. VC-backed portfolio companies developed worse than expected for even more VC fund managers than during the Covid-19 crisis, and respondents anticipated more insolvencies than in the year before. Access to external finance of portfolio companies worsened significantly, according to VCs. Similar to previous years, securing equity finance has been the biggest challenge for VC portfolio companies in 2023.

The exit environment worsened significantly in 2023. Fundraising and the exit environment have become the biggest challenges for VCs in 2023, according to the *EIF VC Survey*; see Figure 42. These two items are also the top challenges for PE MM fund managers in the *EIF PE Mid-Market Survey*, together with geopolitical uncertainty and related consequences as well as portfolio company performance.

Figure 42: Biggest challenges in VC business*



* Diagram shows the results for the *EIF VC Survey 2023* question “Please select the biggest challenges you currently see in the VC business.” The graph shows the total percentage of responses with respect to the items selected by each respondent as their three most important challenges (as far as applicable). The first number in brackets [a;b] corresponds to the current ranking of the challenge while the second number represents the respective ranking of the challenge in the *EIF VC Survey 2022*.

Source: Kraemer-Eis and Croce (2023b), based on *EIF VC Survey 2023*

While many market sentiment indicators of the *EIF VC Survey* that cover the current situation deteriorated further in 2023, compared to 2022, expectations for the 12 months following the survey improved considerably for most of the reported categories. Going forward, this seems to signal that the crisis trough could have already been reached and a moderate upturn could be expected. See Box 9 for an overview of the *EIF VC Survey* and the *EIF PE MM Survey*. This has also been confirmed by other recent PE/VC market information (see, e.g., Atomico, 2023, and Pitchbook, 2023a). That being said, fund managers surveyed in a recent study for Germany stated most frequently that they expect the IPO market, which is particularly important for venture-backed companies, to recover only in the second half of 2024 (Honold et al., 2023).

Box 9: The EIF VC Survey and the EIF Private Equity Mid-Market Survey

The *EIF Venture Capital Survey (EIF VC Survey)* and the *EIF Private Equity Mid-Market Survey (EIF PE MM Survey)* are surveys among VC and PE general partner (GP)/management companies targeting VC and PE mid-market investments in Europe. The surveyed population includes VC/PE firms in which EIF invested as well as firms in which EIF has not invested.

The first *EIF VC Survey* wave was conducted in November/December 2017. The *EIF PE MM Survey* was launched in 2020. The latest wave of both surveys was performed in summer 2023. The main topics of the questionnaire covered the market sentiment, scale-up financing and human capital. The results of the *EIF VC Survey* are published in Kraemer-Eis and Croce (2023b). The results of the *EIF PE MM Survey 2022* are published in Kraemer-Eis and Croce (2023a).

The *EIF VC Survey* and the *EIF PE MM Survey* projects, together with results of a previous *EIF Business Angels Survey (EIF BA Survey)* wave, complement both recent and future quantitative analyses of the economic impact of the EIF's equity operations in the market for VC, PE MM and BA financing.

The *EIF VC Survey* and the *EIF PE MM Survey* provide the opportunity to retrieve unique market insight. To the best of our knowledge, the combined *EIF PE MM Survey* and *EIF VC Survey* currently represent the largest regular survey exercise among GPs in Europe.

The already large outreach of the EIF surveys, which are coordinated by EIF's Research & Market Analysis (RMA), and the high relevance of the questionnaire topics for both market participants and policy makers have further increased through a cooperation with Invest Europe. Moreover, VC sentiment studies, such as those based on the EIF equity surveys, enable a better understanding of the current environment and industry outlook over time and therefore have considerable practical relevance for policy makers, investors and entrepreneurs seeking financing. In market downturns and periods with high geopolitical and macroeconomic uncertainties, which could have far-reaching and long-lasting consequences and may change the long-run framework conditions for SMEs, it becomes even more important to be able to generate timely, relevant and impactful market information that feeds into efficient policy design (Kraemer-Eis, Botsari and Lang, 2023).

The EIF equity surveys are going to be repeated on a regular basis in order to derive robust results and implications. As such, future waves will include additional policy implications and improvements in the EIF's processes and products, as well as a comprehensive market overview of the PE/VC landscape.

The EIF survey results are published in the EIF Working Paper series:

https://www.eif.org/news_centre/research/index.htm.

4.5.2 | Structural challenges affecting European PE and VC

The PE and VC markets have been challenged by the economic developments of the last years, including several severe economic and financial market crises, which resulted in significant structural changes in the global and European economic landscape. The digitalisation of the economy, which has been further intensified by the Covid-19 crisis and beyond, has led to a differentiation of market segments. On the one hand, companies in research-intensive sectors continue to follow more traditional growth models with capital-intensive development stages at

the beginning of their life. On the other hand, companies in the digital space are able to start their activities with very limited resources but are exposed to unprecedented needs for funding in globalisation of their business models. As a result, depending on the sector and the business models of the companies, time-spans from start-up to global leader have shortened considerably and require companies to scale quickly to overcome the risk of seeing their business model being out-dated before they capture a significant market share.

In Europe, too few start-ups survive beyond the critical phase of the first years. Compared to the US, a much larger share of firms remains static and fewer companies manage to grow into large firms (Bravo-Biosca, 2011; European Commission, 2016; Szczepáński, 2017). At the same time, innovative fast-growing firms that are scaling up into larger companies contribute considerably to the overall economic activity, in particular during crises. Despite being disproportionately hit during crises, high growth enterprises, in particular the larger ones, still significantly contribute to economic activity. The economic significance of such firms for short-run growth is almost entirely based on large HGEs, both in phases of expansion but even more so during recoveries (Benedetti Fasil et al., 2021).

On a global level, the VC market has adapted to the new diversity of its target sectors. This has led to a bifurcation of the market between relatively small funds aiming at scouting emerging business models and a still relatively new class of giant VC funds that expanded globally from the US, providing large scale capital to businesses in their worldwide market expansion. In the large scale technology growth capital market, Europe has still too few established players.

In the shadow of companies driving or directly affected by the “digital revolution”, SMEs and mid-caps in traditional industries are reshaping their strategies for competing in a rapidly changing economic environment and are in need of flexible funding instruments with growth equity, mezzanine debt and hybrid debt to classical debt features. EIF market insight shows that growth-stage companies are experiencing a serious lack of growth funding in order to accelerate their international expansion and to strengthen their position against global competitors.

A comparison of PE/VC statistics confirms that the gap between the VC markets in the US and in Europe is particularly big at the later stage (AFME, 2017; Echikson 2017; Benedetti Fasil et al., 2021). These differences are also reflected by substantial distinctions in fund and deal sizes: while at the start-up stage there is relatively little difference in terms of fund size (US vs Europe), US companies are funded by significantly larger funds at the scale-up stage. Furthermore, the average VC-backed US company typically receives higher amounts than its EU counterpart (details are provided in AFME, 2017, Kraemer-Eis and Lang, 2017, and Benedetti Fasil, 2021).

Durufié, Hellmann and Wilson (2017) identify the main elements of a strategy to help Europe catch up to the US in terms of scale-up funding: creation of larger venture funds and an enhanced venture debt market, reinvigoration of tech IPOs, improved markets for secondary shares and avoiding to sell companies too early. The Covid-19 crisis as well as the current difficult macroeconomic conditions have underlined the need for broader availability of scale-up financing sources, particularly in periods of a difficult exit environment and very challenging IPO markets, which entail an increased risk that investors need to sell companies early (Botsari,

Kiefer, Lang and Pal, 2021; Kraemer-Eis et al., 2022). See Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs (2021) for an overview of the scale-up financing gap.

Recent results of the *EIF VC Survey* and the *EIF PE Mid-Market Survey* reveal that securing equity financing has indeed remained the biggest challenge for VCs' portfolio companies (Kraemer-Eis and Croce, 2023b). For the VC business in general, fund managers reported fundraising, the lack of sufficient private domestic LPs, LP ticket sizes, and the availability of scale-up finance for venture-backed companies among the 6 biggest challenges. Hence, unsurprisingly, facilitating the presence or creation of government backed fund-of-funds, supporting the development of competitive private pension funds, and reducing the limits insurance companies face to invest in VC are all seen as important elements to develop the VC market further, which would also facilitate the fundraising for larger VC funds that could invest into companies aiming to scale up. Moreover, fund managers suggested improving the possibility for European scale-ups to execute an IPO. See Kraemer-Eis and Croce (2023a) and Kraemer-Eis and Croce (2023b) for more related insight.

Moreover, despite previous positive developments in European PE and VC, the markets in mainland Europe have still not completely caught up with their global peers. While in many cases the improvements in activity that have been achieved in recent years have indeed been driven by fundamental economic value, part of the upside performance may also be due to higher demand caused by the still ample liquidity in the markets until recently (see Bellavitis et al., 2022, for a recent overview of the monetary policy environment on VC fundraising). It is therefore important to support those companies in their continued growth that have well-developing economic fundamentals, and to also help, through the support of financial intermediaries, additional and complementary businesses to maintain and strengthen the backbone of the European VC market, i.e. a strong and continued supply of new innovative companies.

The VC ecosystem has developed, including the emergence of more and more successful incubators and accelerators. Over the past two decades, the European VC market has matured and the performance of European VC funds has improved (see, also for details, Invest Europe, 2023c). Should these trends continue over the medium to long term, and not get completely interrupted by the current crisis, the potential returns of early-stage companies would have significantly positive impacts on the performance of VC investing.

The geographical fragmentation of the European VC market

The European VC market has remained fragmented. Whilst the traditional core markets in Europe (e.g., the UK and Scandinavia) still have a relatively high market activity after the crisis and others have caught up over more recent years (e.g., Spain), other countries continue to struggle with the size of their domestic VC market which is in no relation to their share in the aggregate GDP of the EU (e.g. Italy and Romania). Figure 43 provides an overview of VC investments as a share of GDP for European and selected OECD countries as well as a European average. Sizable differences in the development of the VC markets prevail and several markets not only suffer from subcritical size but from an institutional investor base that is not sufficiently ready to invest in this asset class (see Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018). See also

Torfs (2023) for an overview of differences in SME financing in general, with a sub-category looking at national equity markets, between EU Member States.

However, when looking into the geographic dispersion of European VC activity in more detail, the picture becomes more complex. VC investors tend to target tech “hubs” rather than certain regions, based on the expertise developed in those hubs. A start-up’s location is likely to have a major influence on the amount of VC that the enterprise receives as well as the number of funding rounds it goes through (Nepelski et al., 2016, who provide a detailed overview of European VC-backed start-up hotspots). EIF research has shown that European hubs, and in particular those backed by EIF investments, act as the beating heart of a complex network of national and international investments. This claim is supported by data on EIF-backed investment amounts originated by hubs between 1996 and 2014: 23% of these remained in the hub, 40% reached out to other in-country locations and the remaining 37% travelled beyond the national frontier (Kraemer-Eis, Signore and Prencipe, 2016).

Since higher cross-border investments can be interpreted as the signal of a deeper integration of the European VC market, EIF may hold a vantage point in fostering the consolidation of a European-wide VC ecosystem. In addition, cross-border VC investments have been facilitated to a certain extent by EU-wide overarching rules and regulations. Moreover, VC firms tend to cluster together much more than their investees. A recent EIF - Invest Europe study found, based on data covering investments between 2007 and 2020, that more than 50% of all VC firms operate in very large cities in comparison to 34% of all start-ups (Crisanti et al., 2021). An updated EIF - Invest Europe study (see Crisanti et al., 2023), which uses investment data covering the years 2007 until 2021, finds that the top 10 European VC hubs account for 69% [51%] of total outgoing [incoming] VC investment volumes, and approximately two-thirds of total volumes in the European VC ecosystem involve actors from two distinct VC hubs (see Box 10 for further results of this study). However, there is still much disintegration in terms of company structure, legal system, regulation, taxations, etc. Another reason for improved cross border investments is that the main hubs have attracted talents from different countries who retain links to their home countries and in turn attract additional human capital and/or companies to the various hubs.

Box 10: The VC factor – Gender lens edition: Data driven insights into European VC and its resilience to the COVID-19 crisis

The European venture capital (VC) ecosystem has demonstrated remarkable resilience, particularly in its rapid recovery from the recent pandemic-driven economic downturn. A significant portion of VC investment in the past decade, over a third, was concentrated in the 2021-2022 biennium, with 2022 marking another industry high. This resilience positions the ecosystem well against the 2023 market correction and represents a desirable trait in the emerging “age of the polycrisis”.

However, as the industry grows, it is crucial that its trajectory becomes both inclusive and cohesive. A new “The VC factor” report (Crisanti et al., 2023) analyses these two critical aspects while also introducing a new way to explore VC hubs in the European Union, Norway, Switzerland and the UK. The report uses Invest Europe’s VC activity data, which provides an unparalleled market coverage.

Box 10 continued:

To address inclusivity, the report looks at the gender diversity status of European VC firms and startups. The analysis reveals that female participation in VC firms and startups is at 23% and 12%, respectively, lower than in underlying industries. From 2011 to 2021, female participation rates in startups increased by 56% and in VC firms by 38%.

However, top-level gender diversity is significantly lower, with women typically representing a minority in their teams. Over 96% of investments were handled by male-dominated investor teams, while all-female teams managed about 0.7% of total volumes. Larger investment rounds further amplify this disparity.

Combining the supply and demand sides of the VC market, the report finds that investors with higher female presence tend to support more gender-diverse startups, a phenomenon known as "homophily". Gender smart policy initiatives may successfully capitalise on this tendency, fostering a virtuous cycle that would narrow the gender gap faster. However, the report highlights that homophily varies regionally, being notably stronger in areas like DACH, Central and Eastern Europe, and Benelux, while more subdued in France, the British Isles, and Italy & Malta.

The report further looks at cohesion by identifying Functional Urban Areas (FUAs) as key markers of the European VC ecosystem. FUAs encompass cities and their main commuting zones. Between 2007 and 2021, 89% of VC firms and startups were located within 613 of the total 729 FUAs in the EU. Against this backdrop, FUAs are the ideal candidates to pinpoint Europe's top VC hubs.

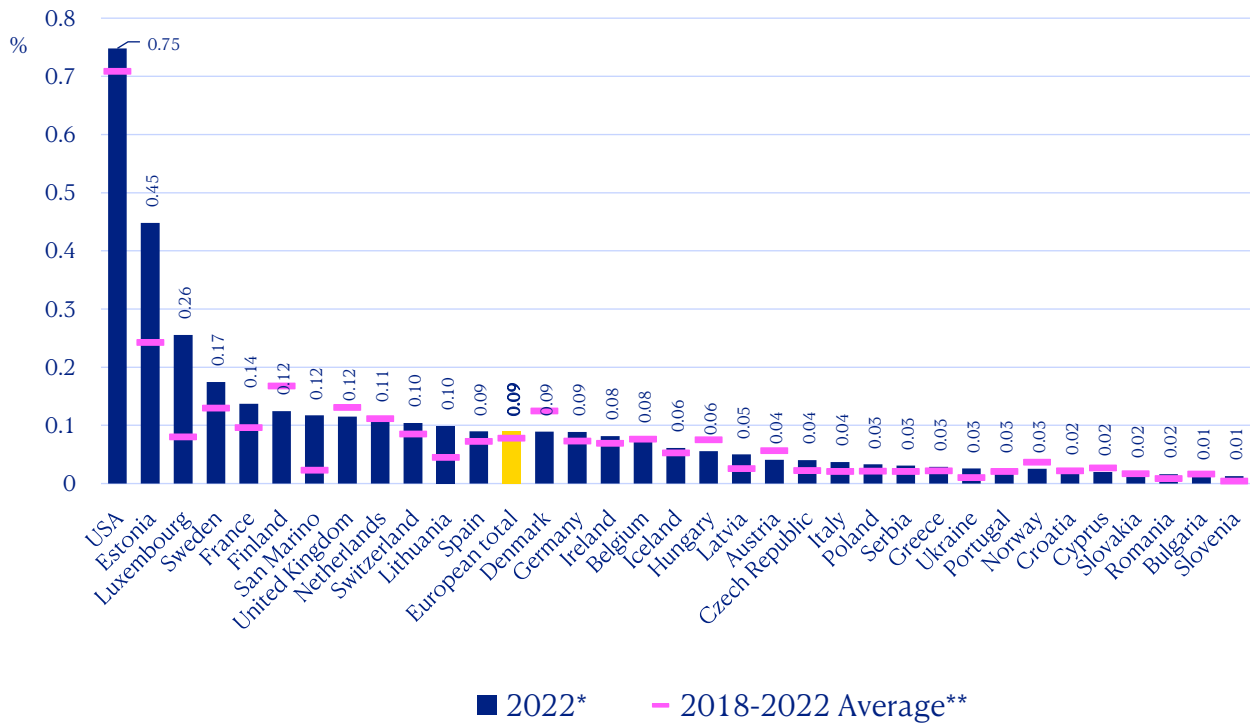
Between 2007 and 2021, Europe's top 10 VC hubs by outgoing investments accounted for 69% of total volumes invested, while the top 10 by incoming investments received 51% of overall amounts received. Despite this high geographical concentration, two-thirds of total investment volumes involved actors in different hubs, highlighting the European VC ecosystem's high interconnectedness and bridging diverse entrepreneurial, institutional, and cultural backgrounds.

The report introduces network analysis as a novel approach to describe the over 3,900 cross-hub interactions. Characterised as a sparse network, the European VC ecosystem sees just over one actual connection for every 100 potential ones. This leads to the emergence of "systemic" hubs with numerous connections, while most others have fewer links.

Transitioning from a volume-centric view, network analysis underscores the influence of VC hubs within the ecosystem. The report employs the Integrated Value of Influence (IVI) measure, identifying the most influential hubs in terms of connectivity and knowledge-spreading potential. Top hubs by volume often correlate with high IVI scores, though some hubs are more or less influential than their volume suggests. This perspective could guide policies towards a more cohesive European VC ecosystem, emphasising connectivity over volumes.

Asdrubali (2023) finds that, besides GDP (or market capitalisation) and distance, the quality of institutions and especially the degree of global financial integration do play a role in shaping cross-border VC flows. At the same time, the uneven development of the financial market within Europe appears to matter little for cross-border VC flows. Hence, policies shaping the institutional framework of the financial markets can facilitate cross border activities and foster an international VC ecosystem for investment.

Figure 43: VC investments by country of portfolio company (% of GDP, 2021)



* 2022, or latest available year.

** 2018-2022 average, if available.

*** Europe as covered by Invest Europe. See OECD (2017) for an overview of the international comparability of VC data.

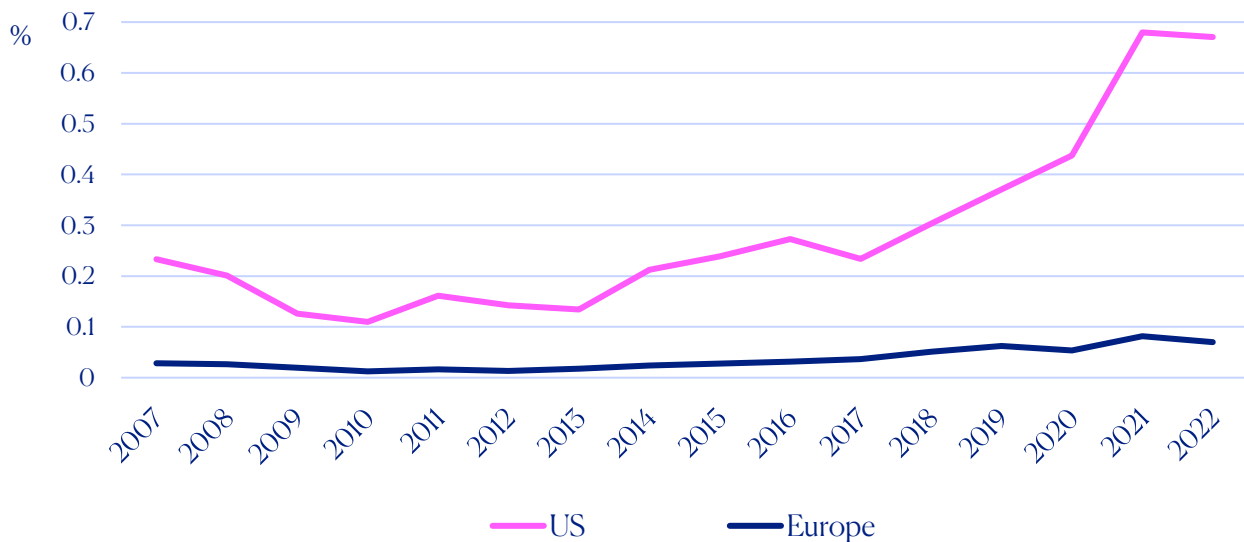
Sources: Invest Europe, OECD, authors' calculations

The comparison of VC investment data between Europe and the US or other countries outside Europe is not straightforward for several reasons (see OECD, 2017, for an overview). For example, data for the US often does not separate out what share of capital is invested by formal VC/PE funds, which leads to US investment figures being higher than the related fundraising. Figure 44 shows a comparison of VC fundraising as a share of GDP in Europe and the US from 2007 to 2022. Although VC fundraising is, on average, lower than VC investment in the US, its level is still substantially higher than in Europe and confirms the diagnosis of a comparatively small European VC market. Despite a booming European market in recent years, the gap – in absolute and relative terms (relative to GDP) has even grown.

As mentioned in chapter 4.1.1 |, European tech companies are often acquired by non-EU buyers, particularly from the US, which “raises the issue of whether the missing scale-up phenomenon in Europe could be linked to the lack of serial tech buyers, that is, incumbents in highly innovative and competitive sectors” (Prencipe, 2017). There is some evidence that foreign VC investment, in particular from the US, increases the likelihood of foreign exits and emigration of entrepreneurs (Braun et al., 2019). While the size of the relocation effect of foreign VC is limited (estimates by Weik and Braun, 2021, suggest that approximately 10% of early US VC investments lead to relocation), the effect is more pronounced when startup financing conditions are poor (Weik et al., 2023). Moreover, there is also some evidence that European startups that migrate to the US receive more VC funding and produce more innovation and reach a bigger scale by exit. A large part of this difference in innovation and scale can be

explained by the US funding advantage. At the same time, the likelihood for a successful exit of these companies is not higher than for their peers that stay in Europe (Weik, 2023). These findings shed light on the global movement of startups and suggest that the outflow can be addressed by improving startups' local financing conditions (Weik et al., 2023). Governmental efforts to increase domestic supply of VC should also have a positive impact (Braun et al., 2019).

Figure 44: VC fundraising Europe and US, percentage of GDP*



* The underlying definitions (categorisations) for the collection of European / US data are not identical, hence differences can only be interpreted as approximation.

Source: Invest Europe, NVCA, Pitchbook, authors' calculations

4.5.3 | Policy intervention in European PE and VC: findings from recent studies

Some of the challenges described in the preceding two chapters continue to weigh on the access to funding in the European PE market and, in particular, the VC and growth market segments. This supports a view that public backing is needed in order to strengthen the market, which is particularly true for new funds, which typically receive less private investment.

Besides the additional funding volumes, public investors' participation in a PE/VC fund can also have a positive signalling effect on private investors, e.g. due to perceived strong due diligence requirements and an assumed higher stability of public LPs' commitment to a fund (see, for example, Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018, and Kraemer-Eis, Botsari, Lang, and Mandys, 2021). These advantages seem to outweigh the potential disadvantages of public investors' participation, like a supposed negative impact on speed and responsiveness or imposed restrictions in the investment strategy of the fund (which can be due to thorough and audit-proof due diligence processes, which are a necessary precondition for the above-mentioned signalling effect). Moreover, Bertoni, D'Adda and Grilli (2016) show that in "thin" VC markets with low supply, which might be a good characterisation for many continental European

markets, governmental VCs can raise competition among investee companies by increasing the deal flow and thereby elevate expected profits of independent VCs³² with purely financial investment objectives. This may attract additional investors and trigger “the virtuous cycle of VC market development”.

For public policy intervention in the VC market, the relationship between private VC activities and governmental support is important. This was analysed in several empirical studies: according to Colombo, Cumming and Vismara (2014), the design of a public VC investment scheme is relevant for their impact. Governmental VC schemes seem to have been more successful when they acted alongside private investors, which would favour a governmental fund-of-funds set-up over direct public investments. Indeed, the focus of support instruments “has shifted from government equity funds investing directly to more indirect models such as co-investments funds and fund-of-funds” in OECD countries (Wilson, 2015b). Moreover, Brander, Du and Hellmann (2014), in a continuation of their 2010-study, find that enterprises funded by both governmental VC and private VC obtain more investment than enterprises funded purely by private VCs, and much more than those funded purely by governmental support. Similarly, Lerner et al. (2021) find a positive relationship between government funding and private capital allocation to early-stage companies. Increased reliance on private capital markets enabled governments to mitigate investment frictions, improve capital allocation, and thereby increase local innovation. Government cooperation with private investors may also help alleviating information and incentive problems that the public sector may encounter when investing public funds in enterprises, in particular when it comes to earlier-stage companies (Lerner et al., 2021).

There is also a positive association between mixed governmental/private funding and successful exits, as measured by initial public offerings and acquisitions, attributable largely to the additional investment.³³ Dubovik and Steegmans (2017) find evidence that public sponsoring of privately managed VC funds creates better exit performance than public management of VC funds. Cumming, Grilli and Martinu (2017) show a higher likelihood of a positive exit for companies backed by independent and governmental VCs together than for companies that are backed by one of the two investor groups only, based on the underlying sample. See also Pavlova and Signore (2021) for comparable evidence stemming from the EIF’s investment activity in the European VC market. Moreover, Bertoni and Tykvová (2012) conclude “that syndicates between private and governmental VC investors, in which the private investor takes the lead, are the most efficient form in terms of innovation production”. However, as said earlier, public policy in the area of VC should go beyond an exclusive support of VC funds (see Hellmann, Schure and Vo, 2015) and aim at attracting equity financing to Europe from other sources, such as angel investors and crowdfunding (Aubrey et al., 2015; Wilson, 2015a). This is even more important, as the Covid-19 crisis seem to have had a particularly negative impact for the access to seed and (very) early stage financing (Bellavitis et al., 2021; Benedetti Fasil et al., 2021; Kraemer-Eis, Botsari, Kiefer and Lang, 2021).

³² Independent VC fund managers act as general partner in a limited partnership in which the fund investors invest as limited partners. This is the most common legal structure for VC funds in Europe.

³³ Dubovik and Steegmans (2017) provide a brief overview.

4.5.4 | Policy intervention in European PE and VC: a practical approach

Taking into account the considerations of the previous chapters, Europe is still in need of an integrated portfolio of funding instruments to support the various segments of its start-up, SME and mid-cap landscape, to unleash the full potential of EU companies' competitiveness and their contribution to Europe's economic growth and innovation. Instruments should be complementary to existing initiatives in terms of sector, stage or geographic focus. As the dynamics of economic developments of the past years, e.g. in the area of the digital economy, has made the segmentation between early stage and late stage VC somewhat redundant, policy instruments that create artificial boundaries of businesses' development stages could be prohibitive to an efficient VC market. Moreover, the EU's VC markets show different degrees of maturity and so require different policy instruments. In less developed markets, instruments may need to work strongly together with the actors of the informal VC markets (BAs, Incubators, TT Centres) and be complemented by flexible co-investment products to grow the domestic VC market. However, when it comes to companies with global ambitions, instruments investing in future industry leaders compete for investors who seek exposure to the best companies on a global scale, not with respect to a given geography. Therefore, giving flexibility to the geographic boundaries of policy instruments is not only key in retaining EU-based businesses in Europe but may attract non-EU based businesses to relocate to Europe. Based on these considerations, it appears vital to offer an array of instruments adapted to diverse market conditions in the various geographies of the EU.

At the same time, large-scale venture initiatives need to include support that helps to grow businesses to larger scale in order to make an impact on the EU's competitiveness. The provision of more growth capital could help alleviate the challenges that later-stage VC firms face when it comes to follow-on financing, particularly in the absence of established, liquid public markets. Creating larger funds will also enable VCs to accompany investee companies for longer periods, minimising the risk that portfolio companies are taken public too early, without having reached a sustainable size. Initiatives aimed at supporting VC firms even in the post-IPO process and at encouraging sophisticated, large crossover investors could contribute to a vibrant VC ecosystem in Europe, enabling European VCs to compete alongside giant, internationally-expanded VC funds.

Measures aiming at regulatory simplification, harmonisation and promoting cross-border investment are steps in the right direction, as intensive policy action is needed to overcome the fragmentation of the European VC market (Bertoni, Colombo and Quas, 2015; see also chapter 4.5.2 |; Kraemer-Eis and Lang (2017) provide an overview of related measures under the Capital Markets Union).

Europe needs a seamless funding infrastructure at large scale in order to support the full corporate financing escalator and to ensure a sizeable mass of home-grown risk capital finance with a long-term perspective. The issue is not only about the availability of funding; it is about the type of funding. The "growth stage trap" is very different in nature from the "early stage gap" and requires new tools and means to address it (see Kraemer-Eis and Lang, 2017). Public backing

of the European VC market should aim at crowding-in private investors and catalysing private sector investments in order to support the development of an integrated European VC market, originated by venture capitalists and other market-oriented professionals, such as business angels (BAs).

In times of scarcity of private capital, the temptation grows to construct policy instruments that substitute the private sector. In fact, there is a need to use public sector resources primarily to mobilise private sector capital. One way to attract private investors to the VC market is a fund-of-funds approach or having government and private investors co-invest in VC funds (Acevedo et al., 2016). As a reference catalytic investor in European venture and growth capital funds, the EIF is providing financing solutions to boost entrepreneurship and innovation, acting as a cornerstone around whom private market players invest, taking comfort from EIF's thorough diligence and investment and ongoing monitoring processes. In the coming years, EIF will continue to act as a cornerstone investor across the spectrum from technology transfer through VC to the lower mid-market and mezzanine financing. EIF's activity in the equity sphere also includes the launch and extension of new initiatives.

5 | SME debt products

5.1 | SME guarantees

5.1.1 | Credit Guarantee Schemes as a policy response to market failures in the SME bank-lending market

Earlier chapters³⁴ highlighted the SME financing gap (OECD, 2006), whereby many SMEs with economically viable projects cannot obtain the necessary financing from the regular system of financial intermediation. This market failure, rooted in information asymmetries, is particularly prevalent in the market for lending to SMEs, for two reasons. The first reason relates to SMEs' lack of collateral, while the second reason relates to the relatively short credit history and operational track record of SMEs compared to their larger counterparts.

Given the strategic importance of SMEs as drivers of economic growth and innovation, it is of crucial importance to address the consequences of credit market failures in order to exploit the externalities from entrepreneurial dynamism (Honohan, 2010).

Credit Guarantee Schemes (CGSs) "are used widely across economies as important tools to ease financial constraints for SMEs and start-ups" (OECD, 2013). This is because guarantee mechanisms, "whereby should the borrower default the guarantor compensates a pre-defined share of the outstanding loan" (OECD, 2015), reduce the risk of lenders and favour the provision of financing to viable businesses that are constrained in their access to finance.

Credit guarantee programs expanded substantially in the years 2007-2011, as governments responded to the global financial crisis; and more recently in 2020, in response to the Covid-19 crisis. Carefully designed guarantee schemes have positive macroeconomic effects, meaning that the costs for the tax payers due to default payments are outweighed by the positive stimulating effects of guarantees on the economy (e.g., fiscal income generated by the supported projects, positive impact on social benefits programs due to created or maintained jobs). Therefore, CGSs "remain the most wide-spread instrument in use across countries" to ease SMEs' access to finance (OECD, 2018). While CGSs do not alleviate information asymmetries directly, and hence do not address the root of the market failure, they can increase the incentives of lenders to supply credit to SMEs by providing a substitute for collateral, and if designed correctly, increase overall welfare.

³⁴ See Chapter 3.2 |.

Arping et al. (2010) examine the conditions under which CGSs are socially preferred over government co-funding, using a moral hazard model in the spirit of Holmstrom and Tirole (1997). They conclude that provided entrepreneurs are not substituting public for private collateral, a welfare-maximising strategy prefers CGSs over government co-funding of investment projects. Government involvement in the establishment and funding of CGSs can also be motivated by resolving coordination failure between private-sector entities, which prevents them from pooling their resources. Anginer et al. (2014) argue that when lenders are risk averse, efficient provision of guarantees may not occur on a private-sector basis due to collective action problems, i.e. although the stakeholders are all aware of the problem, the lack of action comes from the misalignment of the private interests with those of the society. They also stress that the incentives for collective action are even weaker in economies with less developed financial systems. The state, on the contrary, is able to resolve the collective action frictions that get in the way of risk spreading. However, to achieve this objective, the state has to maintain the incentives for lenders to monitor projects efficiently, and to deter the borrower from excessive risk-taking. This can be done by pricing guarantees in a way that ensures the expected losses are covered by the fees charged, and promotes the risk being shared with the private sector.

In addition, CGSs hold other advantages. First, the final lending decision stays with a market-based, private-sector entity (rather than a public agency) – the bank –, which has the expertise and the necessary technology to evaluate credit applications and projects. This is likely to ensure a more efficient selection among borrowers than if the task is done by a public agency, since – given that the guarantee is partial – it leaves part of the risk with the privately operating lender. Second, compared to direct lending programs, CGSs have much lower initial cash flow needs, and as such, have a leverage component. As a consequence, they can also be used when fiscal constraints are tight.³⁵ Third, if CGSs are supranational, they can contribute to an efficient geographic distribution of credit. Results from a recent EIB and EIF survey on European CGSs (see Chatzouz et al., 2017; a summary is provided in Kraemer-Eis, Lang, Torfs and Gvetadze, 2016) highlight that all but one existing CGSs choose to operate within the national borders of the country they are headquartered in. This can be explained by the existence of cross-border information frictions related to national legal frameworks that govern the functioning of CGSs, and obvious practical difficulties to assess risks in different cultural, linguistic and business contexts. Supranational CGSs can therefore contribute to an efficient cross-border allocation of credit.

The role of CGSs is not properly evaluated (Schich et al., 2017). In case some CGSs are assessed at all, they are often focused on financial and not on economic additionality. A toolkit for impact evaluation of public CGSs for SMEs was developed by the World Bank Group and First Initiative (2018).³⁶ In November 2022, a World Bank-led task force provided further guidance on how public CGSs could foster good practices in mainstreaming climate action across their strategy

³⁵ However, the small initial cash outlay of credit guarantee schemes also has disadvantages. Honohan (2010) notes that, as a large number of borrowers can be reached with only relatively small initial costs in the short-run, political incentives exist for the public sector to supply guarantees generously, while concealing the true long-term fiscal costs of a program behind the uncertainty around the expected long-term losses on the guarantee portfolio. This can result in unexpected fiscal costs further down the road.

³⁶ EIF provided input to the project. A short summary of this methodological approach is provided in Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs (2017).

and operations. The guidelines published by the task force³⁷ suggest that public CGSs can support access to green finance for SMEs, acting both as enablers (de-risking private green finance for SMEs) and as shock absorbers (facilitating the provision of emergency finance to viable SMEs hit by a climate-related natural disaster).

The EIF plays an important role in alleviating problems experienced by SMEs in accessing finance. Through a wide range of financial intermediaries, such as banks, leasing companies, guarantee funds, mutual guarantee institutions, promotional banks and other financial intermediaries, the EIF effectively provides both financing to SMEs and guarantees for SME financing. Apart from EIF guarantees for securitised SME financing instruments, the EIF offers guarantees/counter-guarantees for portfolios of microcredits, SME loans or leases.³⁸ In doing so, the EIF manages and implements several mandates on behalf of the European Commission, but also of national and regional Managing Authorities.

A number of recent studies have investigated the impact of some of the EU guarantee programs on the beneficiary firms. Based on an analysis of the MAP (Multi-Annual Program for enterprises and entrepreneurship) EU SME Guarantee Facility and focusing on Central, Eastern and South Eastern Europe (CESEE) countries, Asdrubali and Signore (2015) find significant positive effects of this EU guarantee program on the beneficiary firms. By breaking down the sample by country, signature year, size and age classes, the authors find that micro and young SMEs have benefited the most from MAP-guaranteed loans in terms of economic additionality. More recently, Bertoni et al. (2019) contribute to this body of research by focusing on the population of SMEs located in Italy, Benelux and the Nordics and benefiting from the guaranteed loans provided under the CIP (Competitiveness and Innovation framework Program) and MAP programs. They find that, after receiving a guaranteed loan, beneficiaries grew more rapidly than comparable non-beneficiaries in terms of assets, sales and employment (similar results are also reported by Bertoni et al. (2018) in their analysis of French SMEs). Brault and Signore (2019) review past research from the EIF Working Paper Series and produce the first pan-European assessment of EU credit guarantees to SMEs. This meta-analysis covers over 360,000 loans guaranteed by the SMEG facility under MAP and CIP from 2002 to 2016. The results show that guaranteed loans provided by the EIF under the CIP and MAP programs effectively boosted firm growth and increased survival chances of beneficiaries.

5.1.2 | Credit guarantees as a policy response to the Covid-19 crisis

In 2020, as Covid-19 started to spread across Europe, European governments rolled out a host of initiatives and support measures in an attempt to mitigate the economic impact of the pandemic. The imposed lockdowns meant loss of revenue and cash flow constraints for businesses, particularly for SMEs. Even for an equal revenue shock, SMEs were more vulnerable

³⁷ See World Bank (2022). Task force on greening public Credit Guarantee Schemes for SMEs: Guidelines for integrating climate change mitigation and adaptation in public Credit Guarantee Schemes for Small and Medium Enterprises. World Bank Group, Washington, D.C

³⁸ See for more information the EIF website www.eif.org.

and in greater need for government support compared to their larger counterparts, given that SMEs typically have thinner equity cushions, lower liquidity buffers, fewer financing options and less-diversified revenue sources (IMF, 2020; see Brault, 2023, for an overview of trends in EU corporate demography, bankruptcies and business creations, as well as the role of policy responses during the Covid-19 crisis). Among the credit-support programs aimed at mitigating the effects of the crisis on SMEs, guarantees on loans emerged as the preferred credit-support instrument, accounting for the vast majority of the announced government support volumes.

Brault and Signore (2020) report on the prevalence of credit guarantees among the coronavirus-related fiscal pledges to provide liquidity to affected businesses in a broad range of countries. The authors highlight three factors that influence the economic effectiveness of national guarantee programs to address the Covid-19 crisis: first, the diverging magnitude of the deployed credit guarantee volumes across countries; second, the features of the national industrial landscapes; and third, the varying capacity of European countries to withstand the fiscal consequences of potential future defaults of these guaranteed loans. The increase in government guarantees to the non-financial corporate sector indeed intensifies the interdependency between sovereign states, banks and firms – creating a so-called “sovereign-bank-corporate” nexus (Scope, 2021). The stronger the interdependencies within this nexus, the stronger the incentives for the sovereign to honour its guarantees, given that the high potential contagion risks and macroeconomic costs could lead to further deterioration in economic and fiscal outlooks.

Anderson et al. (2020) investigated (some of) these concerns, i.e. the extent to which unequal support through national coronavirus aid schemes could distort competition in the EU single market, providing an unfair advantage to businesses in better-endowed countries. However, their preliminary findings based on granular level research in France, Germany, Italy, Spain, and the United Kingdom suggest that businesses in richer or less indebted countries did not seem to benefit disproportionately from these schemes, and that the announced headline numbers in relation to guarantee programs were not necessarily correlated with actual commitments to individual businesses. If anything, a positive correlation between credit-support usage and government debt was documented, while the size of the guarantee envelopes did not account for the variation in the level of usage across Europe’s largest economies (Anderson et al., 2021).

Since the beginning of the crisis, public guarantee policies did indeed differ greatly across countries and jurisdictions, in terms of both the funds available and the credit support usage, reflecting the unequal economic shocks experienced. Demand factors, namely differences in the demand for liquidity support by firms, more than the characteristics of the programs themselves, helped explain to a large extent the differences in the usage of the offered facilities across countries (Anderson et al., 2021). The demand for credit by firms was in turn determined by the extent of the GDP loss linked to the severity of the lockdowns, the structure of national economies and the quality of governance (Sapir, 2020).

Budnik et al. (2021) also highlight that the proportion of drawn funds depends on the demand for guaranteed loans in relation to the conditionality of guarantees in a certain country. At the same time, credit supply constraints, i.e. how much lending banks could intermediate and the

ability of the banks to supply these loans – as reflected in their profitability and funding costs, should also be taken into consideration.

By contrast, low interest rates did not appear to have driven levels of lending beyond what could be expected in response to GDP loss (Anderson et al., 2021). Indeed, after an initial surge in demand for public guarantees, the usage of credit-support programs in most countries³⁹ began to slow down in mid-2020 and gradually levelled off in the second half of the year. As a result, the largest guarantee envelopes are unlikely to be fully used (Budnik et al., 2021) and much of the guaranteed funds may serve as liquidity buffers.

A European-level policy response can help alleviate the concerns raised in some of the aforementioned studies. This is because a European-wide deployment of credit guarantee programs to address the effects of the Covid-19 crisis can at least partially offset the heterogeneous fiscal response across European countries and direct liquidity to the most credit-constrained businesses and hardest-hit regions. Furthermore, European credit guarantees can help harmonise the costs arising from potential future defaults at the European level, and can therefore play an important role along other existing or debated European mutualisation schemes. The numerous research studies discussed in section 5.1.1 | confirm the effectiveness of the EIF’s policy response in the past and support the view that the EIF’s activities can represent viable policy instruments to mitigate the aftereffects of the Covid-19 crisis (and the impact of other future crises).

Credit guarantee institutions across Europe adopted a wide range of measures with favourable conditions to support SMEs; and in the case of most guarantee institutions, these measures were indeed backed by the respective national or regional government or by EU funds. These measures included, inter alia: increase of the guarantee capacity, increase of the maximum and decrease of the minimum guarantee amounts, increase of the coverage rate, reduction or waiver of fees and interest, fast-track procedures with reduced documentation requirements, relaxation of repayment schemes, extension of the scope of the guarantees, reduction of collateral requirements, equity and quasi-equity measures, offering of advisory services.⁴⁰

5.1.3 | Market size and activity in 2022

Market information concerning CGSs in Europe is gathered by AECM, the European Association of Guarantee Institutions.⁴¹ In the following, based on data from the latest AECM Scoreboard,⁴²

³⁹ Italy being a notable exception.

⁴⁰ For further analysis of these measures by country and/or guarantee institution, please see SME support in the Covid crisis: The role of Guarantee Institutions, AECM, February 2022; <https://www.flipsnack.com/aecmeurope/aecm-covid-brochure-update-february-2022.html>.

⁴¹ We thank our colleagues from AECM for their support. AECM currently has 45 members in 23 EU Member States plus Azerbaijan, Bosnia and Herzegovina, Kosovo, Moldova, Serbia, Switzerland, Türkiye, and the United Kingdom. In the AECM member countries, the AECM members cover all or almost all SME guarantee activity. Some AECM members are national associations or networks and thus have their own member organisations. AECM has purely private, mutual, public, and public-private mixed members. *Source:* AECM.

⁴² See AECM Statistical Yearbook 2022: https://www.flipsnack.com/aecmeurope/202305_aecm-statistical-yearbook-2022.html

we provide information about the use of guarantees in countries with at least one AECM member to show the state and development of this important market segment.

According to the OECD (2013), guarantees are particularly relevant “in those countries where a network of local or sectoral guarantee institutions is well established”. Key figures based on *outstanding guarantees* on SME loan portfolios (as of 31 December 2022) are presented in Table 3.

As a result of the unprecedented support measures implemented by guarantee institutions in the context of the Covid-19 crisis, the outstanding guarantee volume with regard to guarantees originated from and implemented by AECM members over 2020 had reached an all-time high, at almost EUR 331bn. By contrast, the return to normality for business activities from 2021 onwards saw the gradual phasing out of these extensive support programs as well as the early reimbursement of emergency loans that were no longer needed. But before even SMEs could fully recover from the shock of the pandemic, they already stumbled into the next crisis caused by the Russian aggression against Ukraine. SMEs had to face new challenges amid high macroeconomic and geopolitical uncertainties – inter alia soaring energy prices, high inflation, rising interest rates, supply chain disruptions, and trade sanctions. Many AECM members set up new dedicated programs with favourable conditions to support SMEs that were under strain due to these negative developments. However, these interventions were overcompensated by the phasing out of Covid measures.⁴⁵

This, in turn, translated into a total outstanding guarantee volume of approximately EUR 266bn in 2022, representing a more than 14% decrease compared to 2021 (and an almost 20% decrease compared to 2020). Despite this significant drop, the volume of total outstanding guarantees remains well above the pre-pandemic level. Almost 40% of this volume is attributed to France - in the context of Bpifrance implementing the French government’s PGE (Prêt Garanti par l’Etat) program, while another one-fifth is attributed to the United Kingdom - with British Business Bank being the implementing institution of Her Majesty’s Treasury (HMT) extensive support program.

Consequently, the core countries in terms of total *volumes* of guarantee activities⁴⁴ are France (EUR 102bn), the United Kingdom (EUR 56bn), Italy (EUR 17bn), and Türkiye (EUR 15bn). The United Kingdom, France, and Türkiye also have the highest total *number* of outstanding guarantees. Overall, at the end of 2022, AECM members had almost 6 million guarantees in their portfolio (approximately 8% less than in 2021). This decrease in the number of outstanding guarantees is much less pronounced than the decrease in volumes and it set in only in 2022,⁴⁵ whereas the volume of outstanding guarantees had already started to decrease in 2021.

⁴³ Chapter 3.3 | also discussed secured lending statistics, showing how activity on the bank lending market for loans backed by a guarantee or collateral spiked in the wake of the Covid-19 pandemic, but plummeted to below its historical average by 2022, with the gradual termination of support programs.

⁴⁴ In the first semester of 2019, AECM introduced a clearer definition of the outstanding guarantee volume and asked its members to indicate whether the latter includes guarantees until the moment of the calling of the guarantee or until the moment of the disbursement of the guarantee. However, given that a common understanding on this matter could not be reached, the data presented in subsequent tables do not take into account this differentiation in the definition of outstanding guarantee volume.

⁴⁵ It is important to note that this decrease is strongly dominated by the departure of an important AECM member in Italy. Corrected for this event, the percentage change would be almost +3%.

The outstanding guarantee volume compared to 2021 increased the most in Bosnia-Herzegovina (+71%), Romania (+58%), and Poland (+23%). By contrast, the largest decrease was observed in Bulgaria (-36%), Italy (-34%), and the United Kingdom (-33%). Across countries, the average annual growth rate was -1%, significantly higher than the percentage decrease of -14% recorded overall, reflecting the fact that this decrease was substantially driven by the phasing out of significant parts of the volume of large AECM members.

The total number of *supported SMEs* in the portfolios of the AECM members reached more than 5.2m in 2022, representing a decrease of more than 10% compared to 2021. Hence, 2022 marked the reversal of an increasing trend that had been observed up until 2021, when SMEs had found themselves at the epicentre of the Covid-19 crisis, facing increased liquidity needs and being in greater need of support. The increased number of SMEs that had been supported at times of crisis also highlights the anti-cyclical role of guarantee institutions.

The *average size* of outstanding guarantees in portfolio continued its descent from the peak observed in 2020 to reach a level of almost EUR 45k – still well above its pre-pandemic level. The highest average size was documented in Malta (EUR 293k), followed by Germany (EUR 156k), Austria (EUR 152k), Latvia (EUR 147k), and Estonia (EUR 139k).

Interestingly, while France, the United Kingdom and Türkiye feature at the top of the list regarding outstanding guarantee volumes, they exhibit relatively small average sizes of guarantees (EUR 62k, EUR 33k, and EUR 10k, respectively), reflecting the presence of large populations of SMEs borrowing small loans in their portfolios.

The volume of newly-granted guarantees in the full-year 2022 amounted to approximately EUR 49bn (Table 4), meaning that it almost halved (-46%) compared to 2021, and decreased by more than 80% relative to its 2020 crisis level. Having said this, it remains well above its pre-pandemic level in 2019. As was also the case for the volume of outstanding guarantees, four countries (Türkiye, France, the United Kingdom and Italy) account for 40% of this total new guarantee volume.

The highest increase in new guarantee activity was documented in Türkiye (+124%), Romania (+53%), and Spain (+16%). By contrast, new guarantees decreased the most in Malta (-90%), Italy (-76%), France (-68%), Serbia (-63%), and Greece (-63%).

Table 3: Outstanding guarantees and number of supported SMEs in portfolio as of 31 December 2022, AECM members by country*

Country	Volume [kEUR]	% change from 2021	Number	Implied average guarantee size [kEUR]***	Number of SME beneficiaries
Austria	3,587,206	-25.1%	23,665	151.6	20,577
Belgium	1,306,148	3.7%	12,934	101.0	11,349
Bosnia-Herzegovina	24,561	71.4%	216	113.7	169
Bulgaria	86,414	-36.3%	1,796	48.1	2,025**
Croatia	350,848	12.5%	2,894	121.2	2,137
Czechia	2,390,000	17.1%	23,046	103.7	19,025
Estonia	158,995	-2.2%	1,144	139.0	745
Finland	1,949,341	-13.7%	20,192	96.5	24,400**
France	102,002,174	-7.7%	1,649,739	61.8	1,376,322
Germany	6,321,010	2.2%	40,608	155.7	33,705
Greece	4,337,278	-20.3%	117,847	36.8	30,185
Hungary	7,512,363	13.7%	97,954	76.7	73,006
Ireland	1,542,636	-2.7%	21,161	72.9	20,503
Italy	16,527,338	-34.4%	140,680	117.5	124,599
Kosovo	116,693	-7.5%	6,916	16.9	8,871**
Latvia	275,971	15.0%	1,871	147.5	1,590
Lithuania	456,741	0.1%	4,299	106.2	3,066
Luxembourg	232,297	-9.9%	1,873	124.0	560
Malta	230,207	-2.8%	786	292.9	677
Netherlands	1,617,985	1.5%	56,523	28.6	56,523
Poland	11,217,246	23.2%	176,377	63.6	176,377
Portugal	8,007,386	-18.6%	130,019	61.6	81,642
Romania	7,439,908	57.5%	62,396	119.2	43,955
Serbia	3,717	-17.7%	141	26.4	70
Slovenia	300,314	-3.6%	3,278	91.6	2,602
Spain	7,093,277	10.1%	111,991	63.3	169,835**
Switzerland	10,771,324	-12.1%	105,789	101.8	105,789
Türkiye	15,078,263	-9.3%	1,462,018	10.3	1,191,635
UK	55,530,078	-32.9%	1,676,953	33.1	1,627,190
Total	266,467,720	-14.4%	5,955,106	44.7	5,209,129

* The statistics do not include the business figures of one Hungarian AECM member and of one Romanian AECM member that only have a Counter Guarantee activity.

** In the case of Bulgaria, Finland, Kosovo, and Spain, the number of SME beneficiaries is reported to be higher than the number of guarantees. This is due to different reporting approaches (e.g., the number of SMEs refers to a member count, instead of the actual beneficiaries of guarantees in that particular year).

*** The fact that some AECM member organisations may include former 'inactive' SME beneficiaries in their portfolio even though the guarantee scheme already reached its maturity could distort the total number of SME beneficiaries. Therefore, for the purpose of computing the implied average guarantee size, the 'Total Number of Guarantees Outstanding' rather than the 'Total Number of SME Beneficiaries' is taken into consideration.

Source: AECM, authors' calculations

Table 4: Newly granted guarantees in the full-year 2022, AECM members by country*

Country	Total 2022	% change from 2021	% outstanding
Austria	397,835	-52.3%	11.1%
Belgium	526,674	1.3%	40.3%
Bosnia-Herzegovina	9,872	2.6%	40.2%
Bulgaria	18,607	-49.1%	21.5%
Croatia	60,266	-25.4%	17.2%
Czechia	619,908	-10.3%	25.9%
Estonia	60,902	-2.0%	38.3%
Finland	892,100	-30.3%	45.8%
France	7,038,489	-68.2%	6.9%
Germany	1,282,857	-3.6%	20.3%
Greece	605,467	-62.8%	14.0%
Hungary	4,583,425	2.3%	61.0%
Ireland	370,938	-43.4%	24.0%
Italy	1,251,226	-76.1%	7.6%
Kosovo	47,783	-57.0%	40.9%
Latvia	88,960	-15.9%	32.2%
Lithuania	176,031	-33.2%	38.5%
Luxembourg	60,077	-37.3%	25.9%
Malta	4,604	-90.2%	2.0%
Netherlands	327,258	-24.8%	20.2%
Poland	12,367,626	10.4%	110.3%**
Portugal	570,004	-27.7%	7.1%
Romania	3,831,562	53.1%	51.5%
Serbia	443	-63.1%	11.9%
Slovenia	62,000	-14.2%	20.6%
Spain	2,273,448	16.0%	32.1%
Switzerland	70,285	-47.1%	0.7%
Türkiye	8,289,366	124.3%	55.0%
UK	3,243,007	-15.9%	5.8%
Total	49,131,021	-45.9%	18.4%

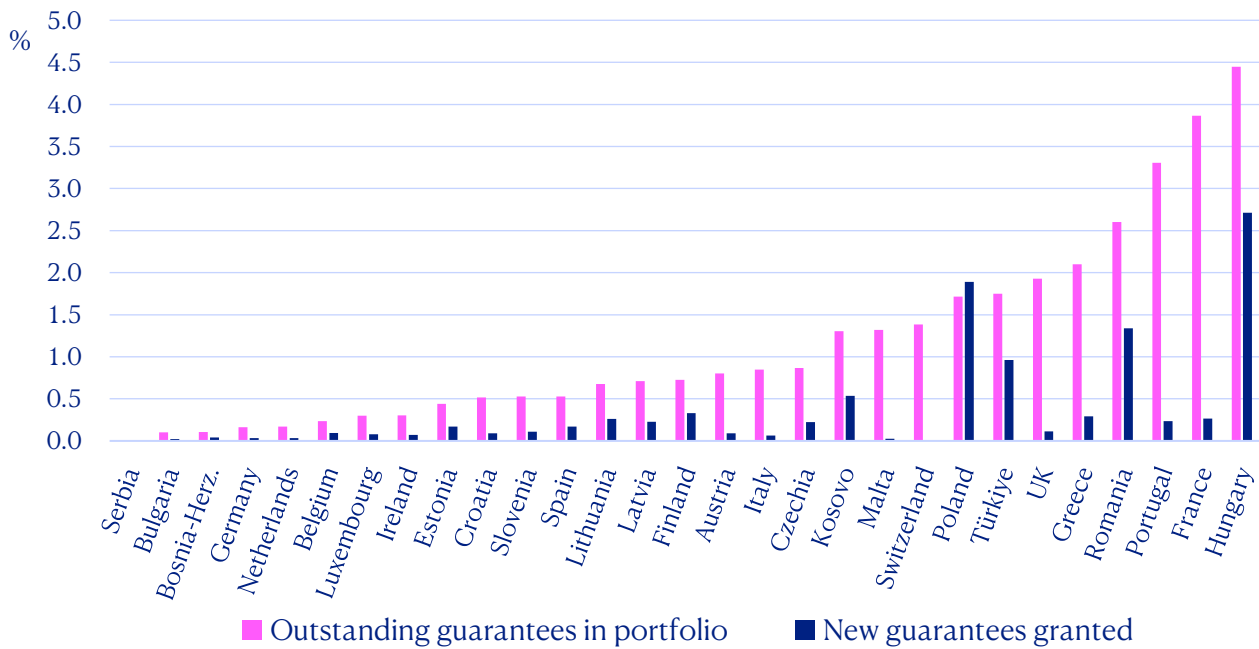
* The statistics do not include the business figures of one Hungarian AECM member and of one Romanian AECM member that only have a Counter Guarantee activity.

** For the Polish AECM member, the total new guarantee activity in the full-year 2022 exceeded the total volume of outstanding guarantees for the same period. As a result, new guarantees in Poland are in excess of 100% of outstanding guarantees in portfolio. If the Polish AECM member in question mostly offers short-term guarantees and if the duration of the latter is less than one year, then it is reasonable to assume that many of the newly-granted guarantees are reported in the related statistics on new guarantee volumes, but are not subsequently reflected in the statistics on outstanding guarantees.

Source: AECM, authors' calculations

In the full-year 2022, the share of newly-granted guarantees in the overall portfolio reached approximately 18% of the total volume of outstanding guarantees for the same period. This share is usually around one-third of the outstanding volume. Hence, while 2020 saw the highest ever registered ratio of new over outstanding guarantee volume (almost 85%), this metric has now decreased substantially, even below the pre-pandemic level.

Figure 45: Volumes of outstanding guarantees in portfolio and of new guarantee volumes granted in the full-year 2022 scaled by GDP*



* 31 December 2022 or latest available data.

Sources: AECM, Eurostat, World Bank, authors' calculations

The *relative importance of guarantees* compared to the value of economic activity in each country is approximated by the share of outstanding guarantee volume (respectively, new guarantee volume) over GDP (Figure 45). After a decrease in the GDP of most countries in 2020, as a result of the recession inflicted by the pandemic, European economies recovered in 2021 and 2022, reaching a GDP exceeding the pre-pandemic levels. At the same time, as discussed already, the phasing out of support programs led to a significant decrease in the total outstanding guarantee volume, but also, and even more so, in the new guarantee volume. Consequently, the share of the overall AECM members' outstanding (new) guarantee volume in the GDP of AECM countries under consideration further decreased from 1.7% (0.5%) in 2021 to 1.4% (0.3%) in 2022 – but remained still above the pre-pandemic level of 0.7% (0.2%).

Hungary leads the ranking (outstanding guarantees at 4.5% of GDP), while France (3.9%), and Portugal (3.3%) complete the top three. Relative to GDP, Hungary, Poland, and Romania are the three countries that recorded the highest amount of *new guarantees* in 2022 (2.7%, 1.9%, and 1.3%, respectively).

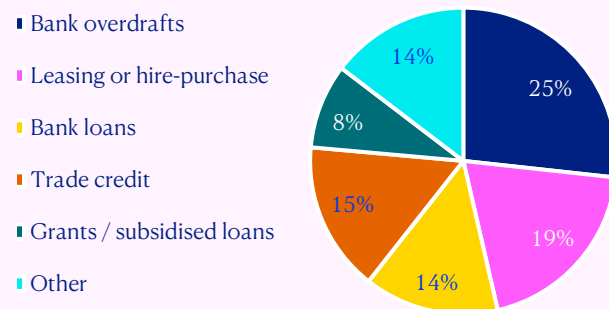
5.2 | Leasing

According to the latest ECB SAFE survey wave (April 2023 – September 2023), leasing is the financing source for which Euro area SMEs report the most acute financing need over the past six months (Figure 46), closely followed by trade credit, other loans and bank overdrafts. At the same time though, the availability of leasing has worsened, on balance, over the past six months, and its availability in the near future is also expected to deteriorate further – albeit to a lesser extent compared to other external financing sources.

There is a wide heterogeneity in the use of leasing, across countries, industries, and firm-sizes (Figure 47). A country-by-country analysis (panel a)) reveals that, similarly to prior years, Finland, Germany and Austria are the countries with the highest proportion of SMEs using leasing or hire-purchase, while SMEs in the south of Europe use leasing less frequently. Compared across industries (panel b)), leasing as a financing source is more prevalent among industrial and construction firms, contrary to Euro area SMEs that state “trade” as their main activity. Finally, the use of leasing or hire-purchase grows with firm-size (panel c)).

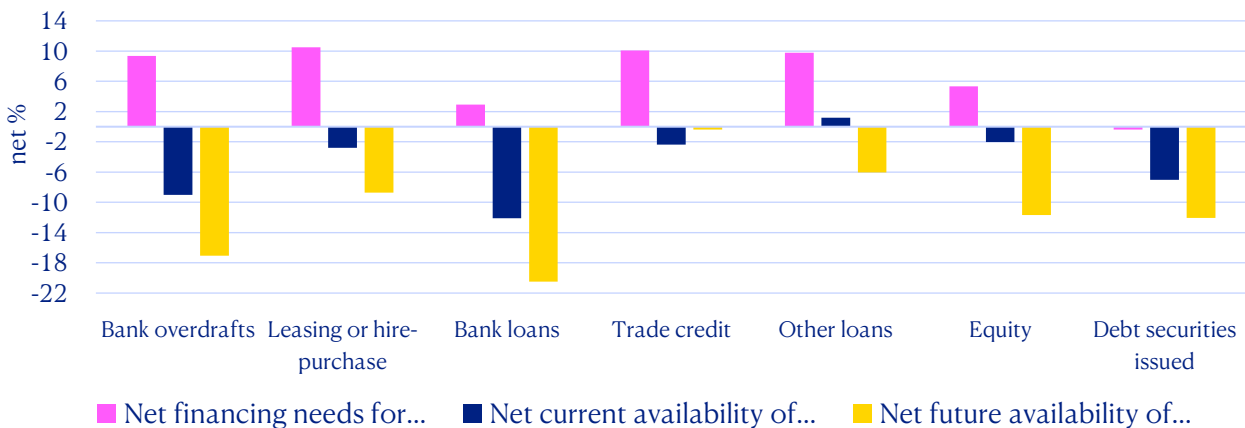
Leasing, an integral part of the SME financing tool set

Leasing is an important element of SME finance. Unlike traditional loans, leasing services are not always directly provided by banks, but rather by leasing or factoring companies. It is an additional instrument that facilitates access to short- and medium-term financing, thereby mitigating market weaknesses in SME lending.



Leasing is the second (following bank overdrafts) most used financing instrument among SMEs (ECB, 2023) and remains more popular than traditional bank loans.

Figure 46: Evolution of financing needs and availability of financing sources for Euro area SMEs (HY1/2023)*



* Net percentages reflect the difference between positive and negative responses for the different factors considered.

Figure 47: Use of leasing or hire-purchase by Euro area SMEs – across countries, industries and firm-sizes (HY1/2023)*



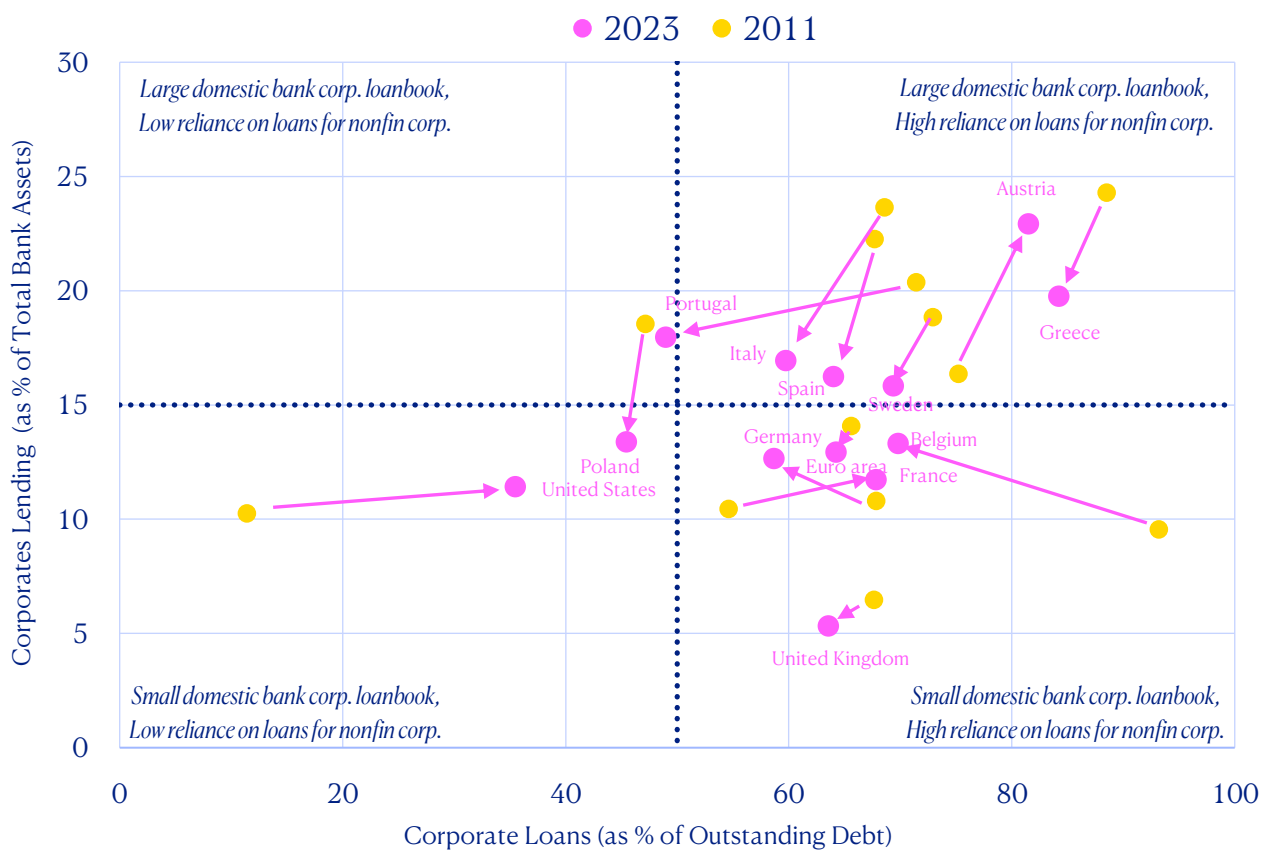
* Percentage of respondents (weighted results) stating that they have used leasing or hire-purchase over the past six months; "Industry" includes manufacturing, mining & electricity, gas and water supply.

Source: ECB SAFE (ECB, 2023a), authors' calculations

5.3 | SME Securitisation⁴⁶

European SMEs rely heavily on bank lending. Figure 48 provides an indication of the different levels of bank reliance for various countries.⁴⁷ The ratio is moving towards more capital market action. For SMEs, the possibility to substitute bank lending with other sources of finance exists only to a limited extent.

Figure 48: Reliance on bank financing by non-financial corporations (in percent)



Source: Author's calculation (based on IMF (2012), with updated data)

Capital market funding in the Euro area has been increasing since the financial crisis (Figure 49). However, this is primarily possible for large corporations. Given that SMEs have only limited *direct* access to capital markets, a well-functioning securitisation market can provide an *indirect* access by transforming illiquid loans to SMEs into an asset class with adequate market liquidity. Securitisation can strengthen the capacity of banks to supply new loans. It can mitigate credit supply frictions and has the potential of having positive real effects on investment, sales and

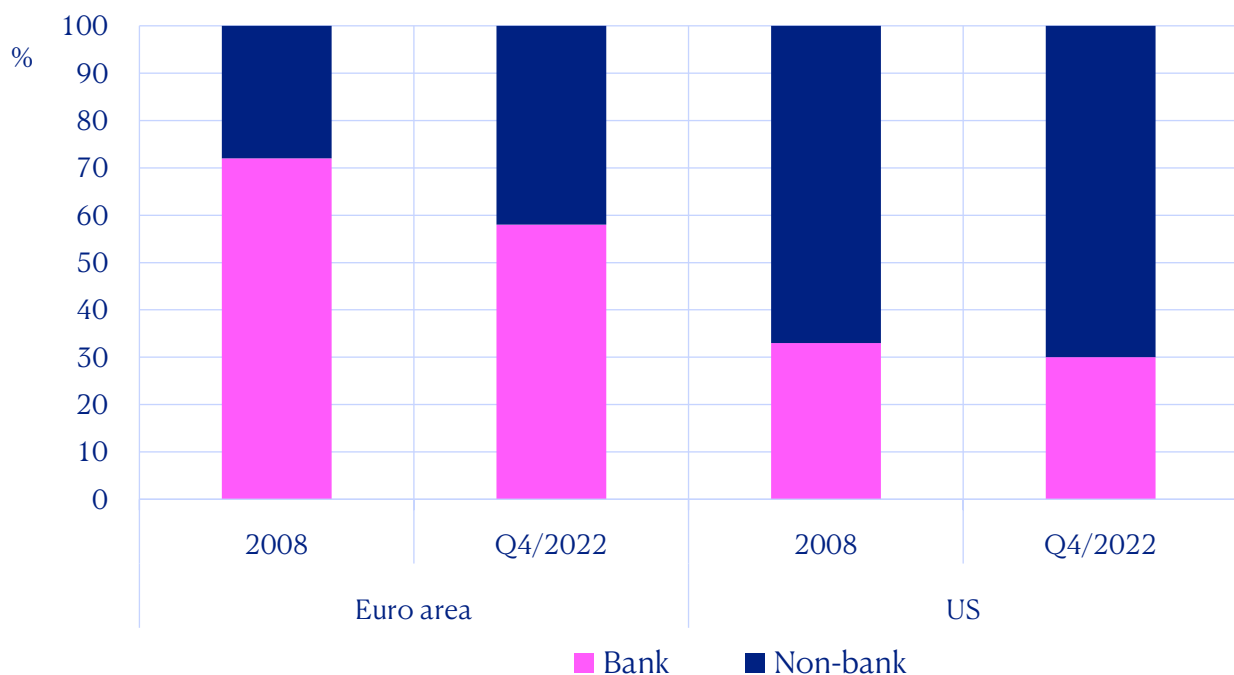
⁴⁶ The term SME Securitisation (SMESec) comprises transactions backed by SME loans, leases, etc. It is important not only to look at banks/lending when analysing SMESec, but equally at leasing companies, which form part of the securitisation market. In particular, securitisation can help smaller originators to make use of the capital market (Moody's, 2017). For more information on the importance of leasing for SME finance, see Kraemer-Eis and Lang (2012 and 2014).

⁴⁷ The figure is related to non-financial corporations, not only SMEs.

employment (Berg et al., 2015). If properly done, securitisation can be a promising tool to enhance funding options for SMEs (Lagarde, 2019). Moreover, it can help banks to comply with the new Basel 3 framework whilst contributing to meet the challenges faced by the European economy (ESM, 2021).

For example, Kaya and Masetti (2018) analysed the impact of securitisation on access to finance for SMEs in the Euro area, based on firm-level survey data on SME financing conditions. They found that an increase in securitisation issuance reduces the probability of SMEs facing credit constraints and decreases the cost of bank financing for non-constrained firms.

Figure 49: Bank/non-bank debt financing of non-financial corporations in the Euro area and the US



Source: ECB, authors' calculations

It is sometimes stated that securitisation might lead to higher risk-taking by banks (or lower lending standards). This is neither confirmed by performance data, nor by research. Kara et al. (2015) analysed data from the euro-denominated syndicated loan market. They found that in the run up to the financial crisis, banks relying on securitisation did not lower their lending standards more than other institutions. Albertazzi et al. (2017) used credit register data for loans to Italian SMEs and tested for the presence of asymmetric information in the securitisation market by looking at the correlation between securitisation and default probability. They found that, despite the presence of asymmetric information, securitisation did not lead to lax credit standards, but rather that the quality of securitised loans was better than the one of non-securitised loans, i.e. a positive selection effect takes place.

Loans to SMEs are a key driver for the functioning of the economy and, properly applied, securitisation is a replicable tool that can enhance access to finance for SMEs. By using this instrument in developed capital markets, public sector support for SMEs (e.g. guaranteeing

mezzanine tranches) can create multiplier effects - and hence it is an efficient use of public resources, which is especially important against the background of scarce financial resources for public support and a high public debt burden in many key countries: “[...] strengthening SME securitisation may be one of the most effective ways to facilitate the flow of funds to the real economy, while not creating too much distortion” (Kaya, 2014). Integrated EU capital markets (and their need for transparency and standardisation) and the relative complexity of securitisation techniques require considerable know-how and show the necessity for specialised institutions. As an established and respected player in the European securitisation market, the EIF, in close cooperation with the EIB, plays an important role via market presence, reputation building, and signalling.⁴⁸

The ECB is also interested in securitisation, including SMESec, for three main reasons (Mersch, 2017). Firstly, the ABS (Asset Backed Securities) market acts as one of the transmission channels of the ECB monetary policy (facilitating the provision of credit to the real economy). Secondly, ABS form an important part of the collateral framework in the Euro system., And thirdly, this technique can transfer risk away from the banking sector, which may support monetary policy.⁴⁹

Already before the Russian war against the Ukraine, the IMF (Aiyar et al., 2021) anticipated a significant pandemic-induced fall in capital ratios of European banks with considerable cross-country variations, depending on the size of the macroeconomic shock and the pre-pandemic condition of profitability and bank balance sheets. With the war, another macroeconomic shock hit the financial system. Such limitations on the banks’ side clash with increasing lending needs (e.g. in the recovery from the Covid-19 crisis, greening the economy, digitisation, etc.). As a reaction, banks can raise additional capital, or alternatively they can use securitisation and remove risks from their balance sheets so that more capital is free for new lending (Bell, 2020).

Securitisation, a value-laden term

Securitisation per se is neither good nor bad - it is a toolbox, an instrument, a technique. As such it is value-free. However, an aggressive, opaque, and overly complex use as done by some market participants in the past has negative consequences for both issuers and investors. Negative repercussions are also created by an overly simplified discussion where everything related to structured finance is lumped together and sometimes dismissed or branded as “toxic”. The instrument is neither “toxic” nor is the underlying asset (in the case of SMESec: SME loans/leases) “toxic waste”.

⁴⁸ The EIF’s involvement in the SME securitisation market is twofold: 1) guaranteeing tranches of ABS transactions issued by banks in order to obtain funding, and 2) guaranteeing tranches of synthetic securitisations which allow banks to release regulatory capital. For more information on the use of securitisation at the EIF: <https://youtu.be/liDM-KPjScE>. The widely recognised role of the EIF in the synthetic market led to the securitisation division of the EIF winning the award as “best SRT investor”. The respective pitch to the competition can be found here: https://www.eif.org/news_centre/publications/eif-submission-to-the-sci-capital-relief-trades-awards-2019.htm

⁴⁹ In November 2014, the ECB started its Asset Backed Purchase Programme (ABSPP). The overall objective was to enhance the transmission of the monetary policy, support the provision of credit to the Euro area economy and, as a result, to provide further monetary policy accommodation. The ECB’s support of the ABS market was a positive step. However, the programme has almost no direct impact on the SME segment of the market. On 14 June 2018 the ECB announced to reduce the asset purchases from October 2018 onwards, and then to stop the ABSPP by the end of 2018. In November 2019, the ECB restarted the purchase programme and continued until the end of June 2022. From March 2023 the Eurosystem only partially reinvested the principal payments from maturing ABS; from July 2023 all reinvestments were discontinued. By end of September 2023, a portfolio of EUR 15.3bn was reported under the ABSPP. The detailed breakdown reveals a focus on residential mortgages and auto loans, and that SME transactions did not play a role so far ([ECB website](#)).

Overall, the reputation of the SME securitisation market segment is continuously improving and a de-stigmatisation is happening. In the context of the Covid-19 crisis one could even read that “[...] the market is rehabilitated just in time to save Europe’s small and medium sized enterprises (SMEs). [...] The same financing blamed for destabilising the European economy in the last crisis may now be used to rescue it” (Brown, 2020). Also, in relation to greening the economy, or even in the wider ESG context, securitisation is more and more often referenced as supporting tool.

Despite the benefits of the SME securitisation market outlined above, SMESec placed with investors currently represents only a very small portion of the total issuance and there is for the time being only a very limited primary market.

The SMESec market in Europe is still underdeveloped despite SMESec having many advantages for banks, for investors, and – most importantly - for the SMEs. A real recovery and development of the primary securitisation markets could play a role in ensuring sufficient credit supply for SMEs during the crisis and the recovery process. Moreover, in addition to the direct effects of the SMESec markets, there are indirect benefits to SMEs from the development of other securitisation segments that free up space on bank balance sheets to allow for further SME lending (AFME et al., 2016). However, this will only be to the benefit of SMEs if the freed-up capital / fresh liquidity is going to be used to finance the real economy (i.e. for new SME lending), which is in particular the EIB Group’s business framework.⁵⁰

Securitisation data

The AFME data used here classifies only lending-based transactions in the SME basket. Most leasing-based transactions, classified in AFME’s data under ABS Leases in the overall ABS basket, are de-facto SME transactions. Moreover, in the securitisation market, there are often (synthetic) transactions on a private/bilateral or club basis that are not visible in the official statistics. Over the recent years there was a significant rise in number and volume of synthetic SME transactions, driven by risk transfer, asset liability management aspects, and regulatory capital considerations. See for example Box 111 below for a summary of EIF’s securitisation activities. These transactions do not appear in the statistics and can only be estimated via surveys of market participants. Therefore, the numbers, shown here, are an underestimation of the real market size and can be seen as a lower bound.⁵¹

⁵⁰ See for a detailed discussion on SMESec activities: Kraemer-Eis, Schaber, and Tappi (2010), Kraemer-Eis, Passaris, and Tappi (2013), Kraemer-Eis, Passaris, Tappi, and Inglis (2015), Aiyar et al. (2015), or the joint statement of eight leading trade associations: AFME et al. (2016).

⁵¹ For example, EBA (2020) estimates for 2018 a volume of SMESec to be around EUR 105bn, out of which 19.6bn SMESec (see EBA (2020) for an analysis of the synthetic market). Issuer appetite for synthetic risk transfer remains strong (Kang, 2021) and increasing. The ECB estimates synthetic transactions in 2022 of more than EUR 140bn (Gonzalez and Triandafil 2023) and a significantly higher amount can be expected for 2023. Also for the EIF, synthetic transactions have become the main securitisation activity over the recent years, including a significant share of transactions in Central and Eastern Europe.

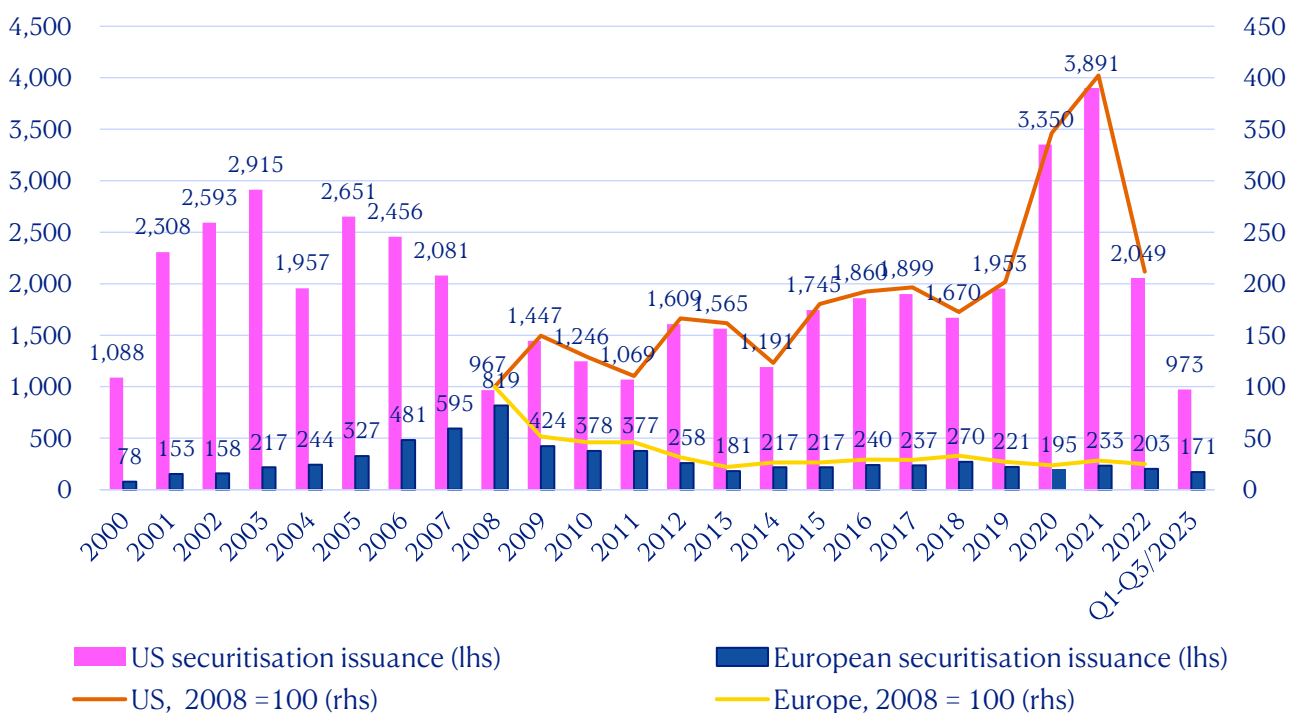
5.3.1 | SMESec market activity⁵²

The European securitisation market has grown steadily from the beginning of the previous decade until the outbreak of the GFC. However, it is much smaller than its US peer (Figure 50). During the financial crisis, issuance remained initially at high levels in Europe, but these volumes were almost exclusively driven by the eligibility of ABS as collateral for ECB liquidity operations;⁵³ then the overall market activity decreased to the levels seen in 2003/2004.

Issuance

European *total securitisation issuance* in 2022 showed with EUR 203bn (EUR 79.7bn placed vs. EUR 123.3bn retained) y-o-y a significant decrease (- 12.8%). In HY1/2023 a volume of EUR 131bn was issued, compared to EUR 616bn in the US. In Q3/2023 EUR 39.5bn was issued in Europe, a decrease of 59% compared to Q3/2022.

Figure 50: Securitisation issuance in Europe vs US (annual issuance 2000 – Q3/2023, bnEUR)



Source: AFME, authors' calculations

Before the outbreak of Covid-19, *SMESec issuance* was still suffering from the after-effects of the financial crisis – and continued to suffer during the first year of the pandemic. In 2021 and 2022, visible (true sale) *SMESec* issuance in Europe returned to pre-pandemic levels. In 2022 (EUR

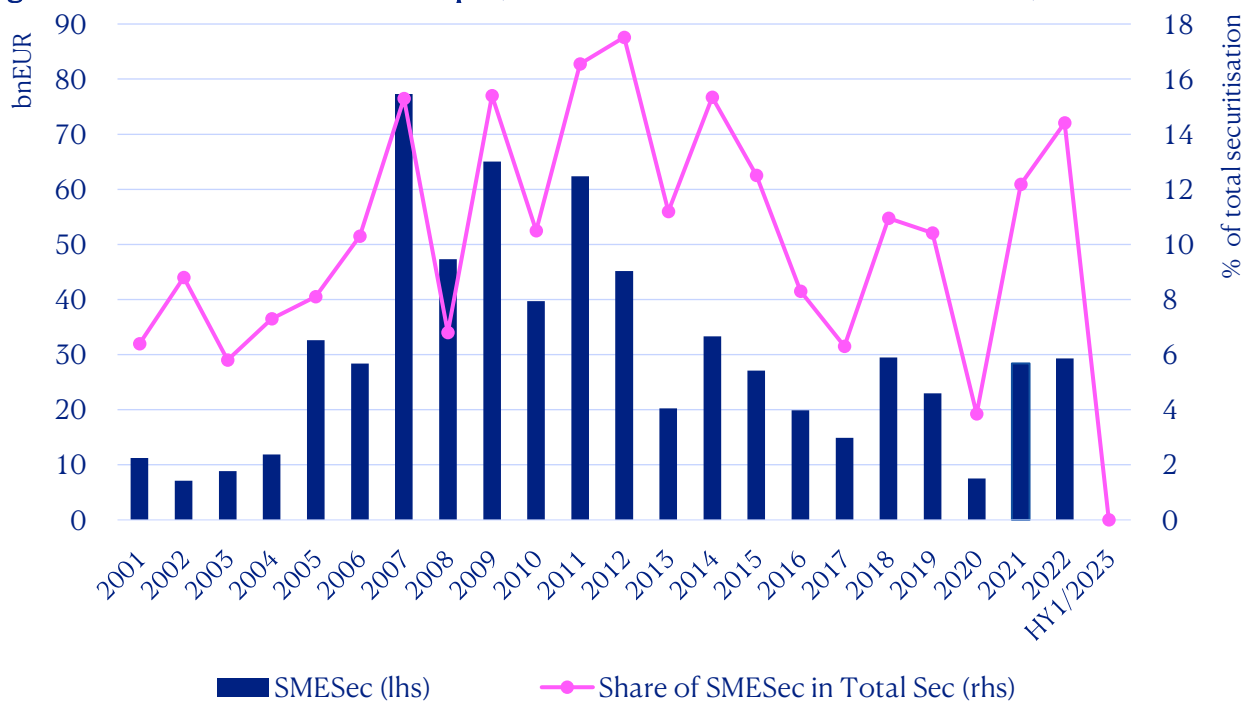
⁵² If not flagged otherwise, the data source is AFME, the Association for Financial Markets in Europe. Please note, AFME changed sources of securitisation data. Historical data (i.e., data reported prior to Q1/2020) might be not comparable with current data. Moreover, collateral type categorisations have been subject to changes.

⁵³ The ECB's asset repurchases or "repo" facility allows (among other assets) Asset Backed Securities to be used as collateral for funding.

29.3bn) the volume was similar to 2021 (EUR 28.4bn), entirely driven by activities in Q4. The market share of SMESec in overall securitisation issuance rose (with some volatility) from 6% in 2001 to 18% (of total yearly issuance) in 2012, the highest value ever registered in Europe. This, however, was due to the base effect, as the overall activity went down (while SMESec activity decreased slightly less). From 2014 to 2017 the share of SME issuance in the overall activity went down from 15% to 6.3%, based on shrinking SMESec volumes. Due to the further declining overall securitisation volume in Europe, the share of SMESec rose to 14.4% of total. In HY1 2023 there was no visible SMESec activity.

Typical originators of SMESec - also often active as repeat originators - are large banks or banking groups – some of them are active as originators in several countries, but also mid-sized banks. Moreover, in particular in the field of leasing, non-bank asset finance providers are active as originators. Typical originators of synthetic securitisation are credit institutions, in particular large/systemically important banks using internal rating-based models for calculating capital requirements. However, recently also some standardised banks, including “non-traditional” jurisdictions (e.g. Central and Eastern Europe), have stepped into synthetic transactions, based on support given by the EIB/EIF and in response to the introduction of the SEC-SA (Standardised Approach) risk weight approach under the new EU securitisation framework (EBA, 2020), see Box 11 for a brief overview of the EIF’s securitisation activities.

Figure 51: SMESec issuance in Europe (volume and share of total securitisation)



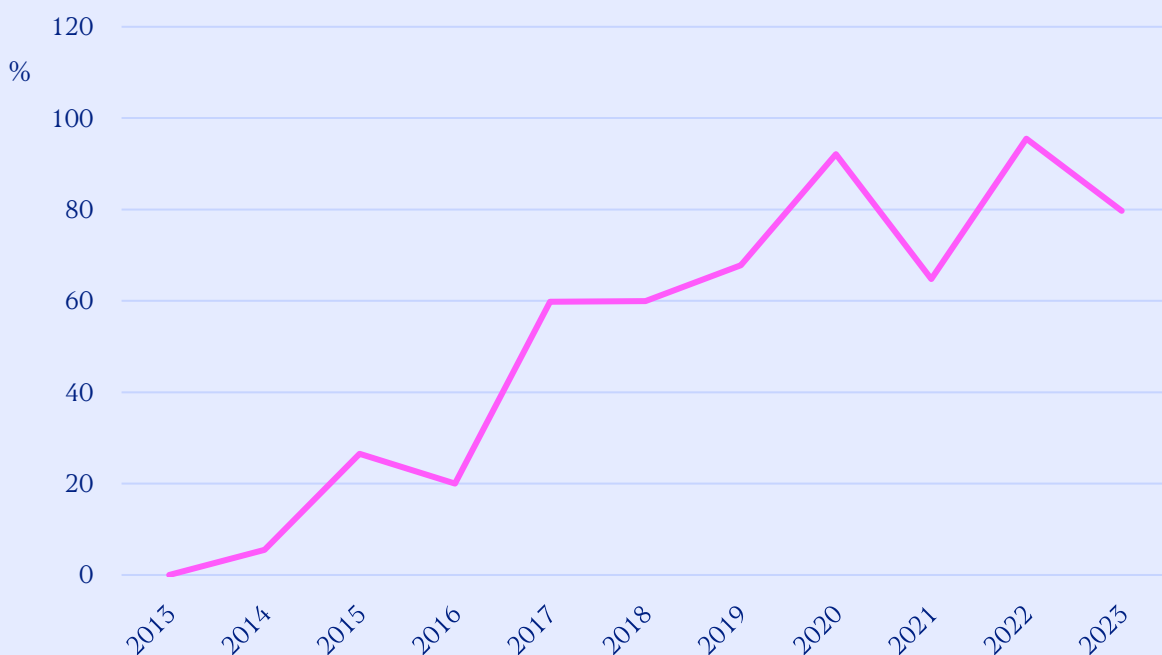
Source: AFME, authors' calculations

Box 11: EIF’s securitisation activities – a strong focus on synthetics

Since 2013 the EIF has invested more than EUR 17bn in securitisation transactions, with a significant increase of activity in the last 3 years during which the EIF has invested over EUR 8bn in synthetic and true sale transactions. As a result of that, the EIF has secured commitments by European banks for additional SME lending exceeding EUR 57bn. These numbers were predominantly driven by the much higher leverage (or catalytic) effect of the synthetic transactions. Indeed, the EUR 11bn invested in this type of deals has generated over EUR 42bn of new lending commitments.

The top 5 countries where the EIF is active account for approximately 70% of the aggregate investments over the last 10 years. Among those are countries with deeper financial markets such as Italy, Germany and Spain. One of the EIF’s objectives in this business line is to develop the securitisation “infrastructure” across the EU. In this context, the share of the EIF’s securitisation investments in CEE went from close to zero in 2013 to close to 40% today. A third of those investments are conducted in Poland but the EIF is also present in a number of other CEE countries such as the three Baltic states, Romania, Bulgaria, Slovakia, etc.

Due to the interest rate environment over the last 10 years as well as the quantitative easing by the ECB, cash ABS transactions were less attractive for originators and happened rarely during this period. As a result, the EIF adapted its approach and turned its attention to synthetic securitisations. They represented less than 10% of the EIF’s securitisation investments in 2013/2014 and increased to over 80% nowadays. In total, since 2013, the EIF has invested in 136 transactions out of which 86 were synthetic.

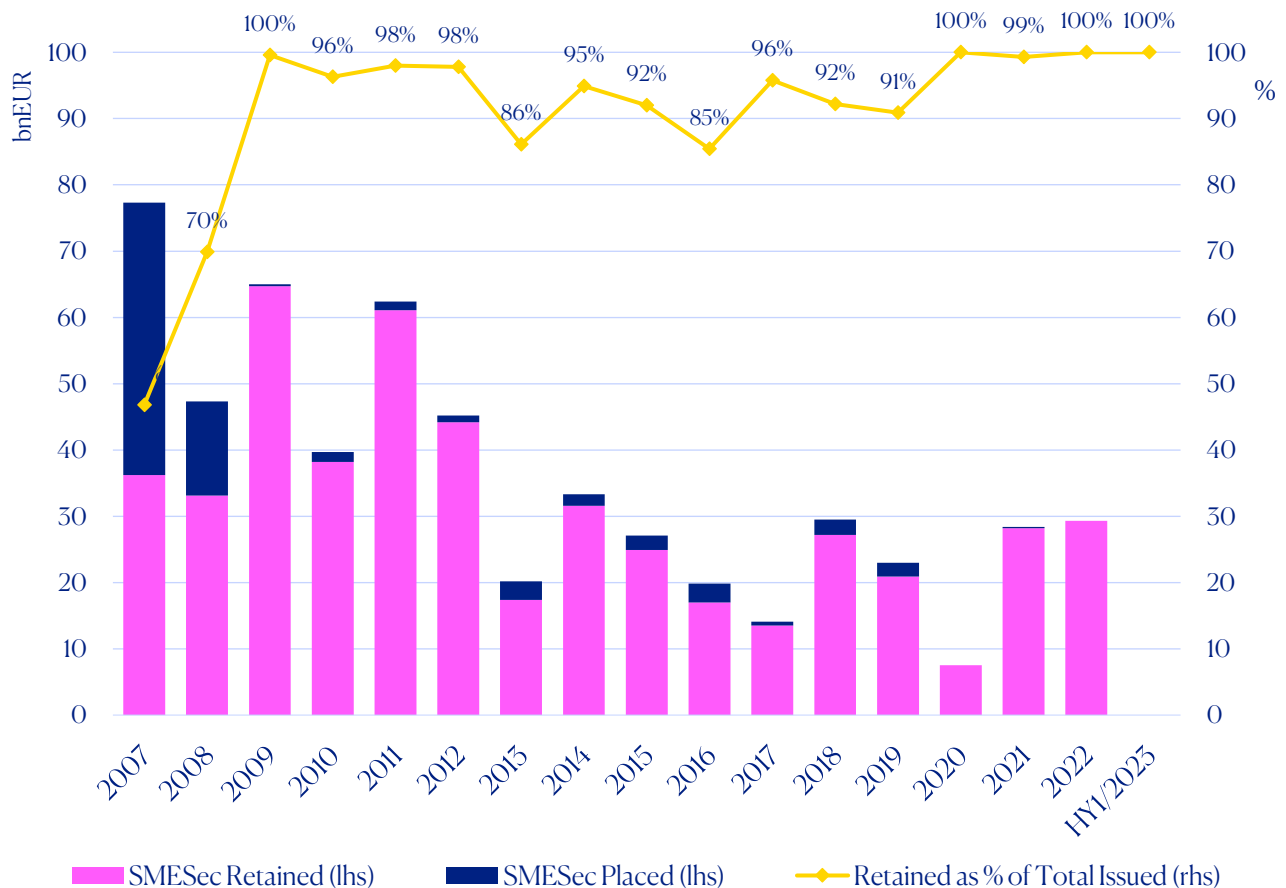


Source: EIF

As already mentioned, it is important to note that only a very small fraction of the issuance has been placed with investors – the investor base has not yet recovered. The nature of the SMESec market changed from a developing market (pre-crisis, with most transactions placed in the primary market) to a purely retained/ECB repo-driven market (with almost no placement on the

primary market). This shift led to liquidity drying up and originators accepting higher all-in costs as, in addition to the credit enhancement, the repos envisage considerable haircuts to the face value of the notes.⁵⁴ The share of retained SME transactions, registered by AFME in 2022, reached 100% (Figure 52).

Figure 52: European SMESec by retention



Source: AFME, authors' calculations

Outstanding

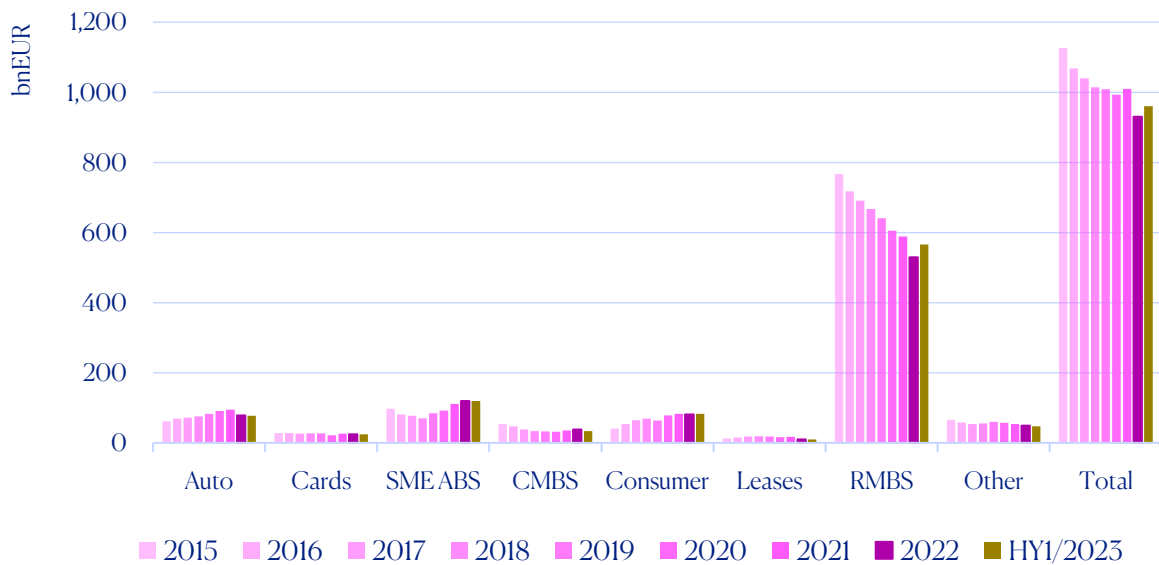
At the same time, the European market is lacking investors - due to various reasons, e.g. return expectations that cannot be met, lack of attractiveness for insurers (driven by Solvency II), or extensive due diligence requirements, just to mention a few.

⁵⁴ In the early days of SMESec, banks had typically retained the first-loss piece tranches. Most primary issuance was placed with investors. Since the outbreak of GFC, the composition of placed versus retained securitisation changed significantly and the majority of issued transactions were retained by originators. Driver was the fact that central banks started accepting securitisation as collateral for commercial bank funding. Normal sources of interbank credit stopped flowing and banks started to retain securitisations on their balance sheets, using it as collateral for repo or other forms of secured funding, instead of placing it with investors (see also AFME, 2014)

Due to low new activity levels, the volume of *total outstanding securitisation transactions* (Figure 53) is on a downward trend (negative net supply). RMBS continues to be the most dominant securitisation type (by collateral).

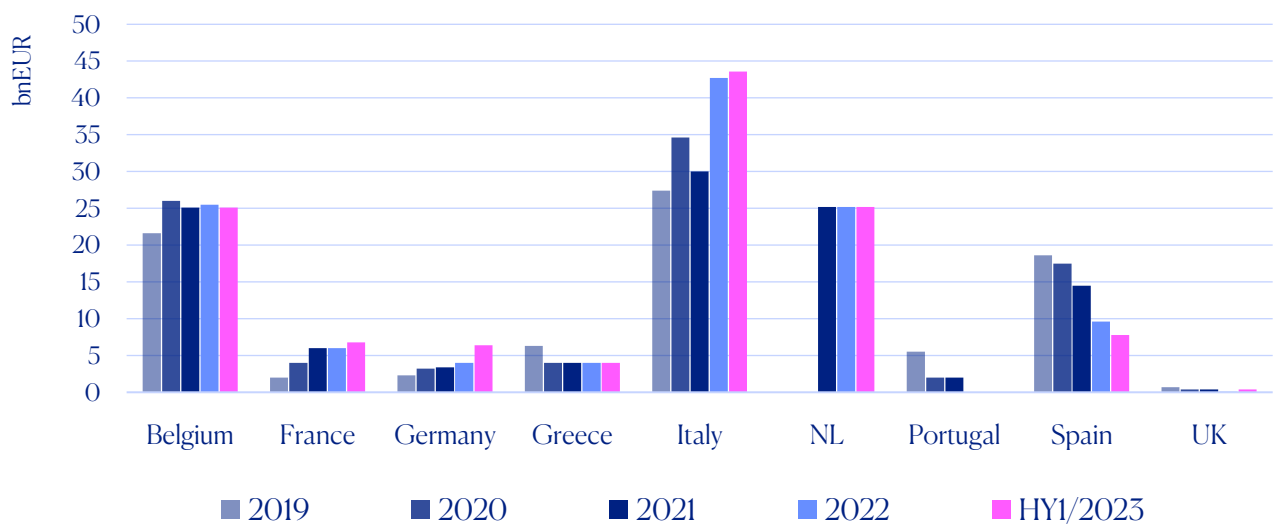
Breaking down SMESec volumes per end of HY1/2023 by country shows that the main three countries together represent almost 80% in terms of outstanding: Italy, Belgium, and the Netherlands, see Figure 54.

Figure 53: European outstanding securitisation by collateral (by end of period, bnEUR)



Source: AFME, authors' calculations

Figure 54: European SMESec outstanding volume by country (by end of period, bnEUR)



Source: AFME, authors' calculations

STS activity

As outlined in detail in previous versions of our ESBFO, the new securitisation regulation, originally triggered by the GFC, entered into force on January 17, 2018 and is applicable for securitisation transactions since January 1, 2019 in all Member States; some grandfathering provisions are valid. The signalling approach via simple, transparent and standardised (STS)-labelled securitisations (incl. SMESec) - which receive preferential regulatory treatment – is an important step and forms a building block of the CMU.⁵⁵

These regulations do not only cover European issuers and investors. Any securitisation anywhere in the world must meet the general requirements of the regulation (e.g. related to due diligence, transparency, risk retention) for securitisation to be investible by EU institutional investors or by non-EU based investors, acting on behalf of EU institutional investors. For such a compliant securitisation to qualify as STS, it must satisfy a number of additional criteria and its originator, sponsor and Securitisation Special Purpose Entity must be established in the EU (see for more details BoA/ML, 2018). The transition to the new regime poses many types of challenges (legal, structural, informational, IT) to market participants, i.e. issuers and investors (PCS, 2018a and b); as an example, issuers have to prepare different types of reports for rating agencies, ESMA, ECB, and investors. Activity volumes - for securitisation in general, but in particular for STS transactions - will be dependent on the market players' ability to meet the new requirements.

In March 2019, the first STS compliant transaction came to the market.⁵⁶ According to AMFE data, in 2022, a total volume of EUR 66.1bn was notified as STS by ESMA, representing 32.5% of the total issued volume (for comparison: in 2021, EUR 63.6bn, representing 27.2% of total). In HY1/2023, a volume of EUR 39.1bn was notified as STS, representing around 30% of the total issuance.

Longer term SMESec performance trends

SMESec market activity in Europe started towards the end of the 1990s. At the time, this segment was relatively unknown to investors and rating agencies (based on the novelty of the applied tools, as well as on the heterogeneity of SMEs/SME loans), and the securitisation technique was also new to most of the originators. Many banks were not equipped to securitise SME loans, often hindered by inadequate IT infrastructure necessary to support such transactions.

The performance of SMESec transactions depends on a number of parameters, like the structure of a transaction (including embedded protection like, e.g. excess spread), SME credit risk (including recovery rates), portfolio structure (e.g. rating distribution, obligor concentration, industry concentration, etc.) and also macroeconomic parameters. Despite the financial and sovereign crisis and the prolonged negative economic cycle, the European securitisation market in general has performed relatively well with comparatively low default rates (for true sale and

⁵⁵ Under the new regulations, the new risk weights for STS result in increased capital requirements for IRB banks compared to the past.

⁵⁶ For a detailed chronology concerning the introduction of STS securitisations please see Kraemer-Eis, Botsari, Gvetadze, Lang, and Torfs (2019). For ESMA data related to STS see ESMA, 2023b.

public synthetic balance sheet transactions). On the one hand, before the financial crisis started, SMESec volumes were small compared to the overall securitisation market – and the market had not had much time to develop. On the other hand, the limited track record was one of the reasons for the relatively conservative SMESec structures which can partially explain the good SMESec performance in Europe compared to other segments of the European securitisation market and to the US.

After the financial crisis, the positive SMESec performance continued, despite worsening economic framework conditions - inter alia driven by political event risk as well as the pandemic – and the performance remained stable. The low losses are not only due to the typically high granularity, diversification and seasoning of these transactions, but also to the structural features (such as large credit enhancement) that helped counterbalance the negative effects of the deteriorating European economy (i.e., increased SME default rates). This leads to the effect that the performance of most senior SMESec tranches in Europe have been on par with prime RMBS, although typically prime residential mortgage loans tend to perform better than SME loans within the same country (Moody's, 2018).

Rating agencies report strong long term structured finance performance for Europe (see e.g. Moody's, 2019, 2021, S&P 2019, 2022, 2023, or FitchRatings, 2019). Losses in the SME segment are mainly caused by German SME loans, originated through an “originate-to-distribute” business model (non-granular hybrid transactions / German Mezzanine CDOs⁵⁷), or by Spanish SME loans. “European securitisations in the basic and simplest asset classes displayed spectacularly good credit performance through the severe economic downturn triggered by both GFC and the subsequent Eurozone crisis. [...] This includes securitisations in what became at times highly stressed economies such as Spain, Greece and Italy. It became clear that properly structured transparent securitisations, such as Europe had been issuing, were a safe and resilient financing tool” (Bell, 2020).

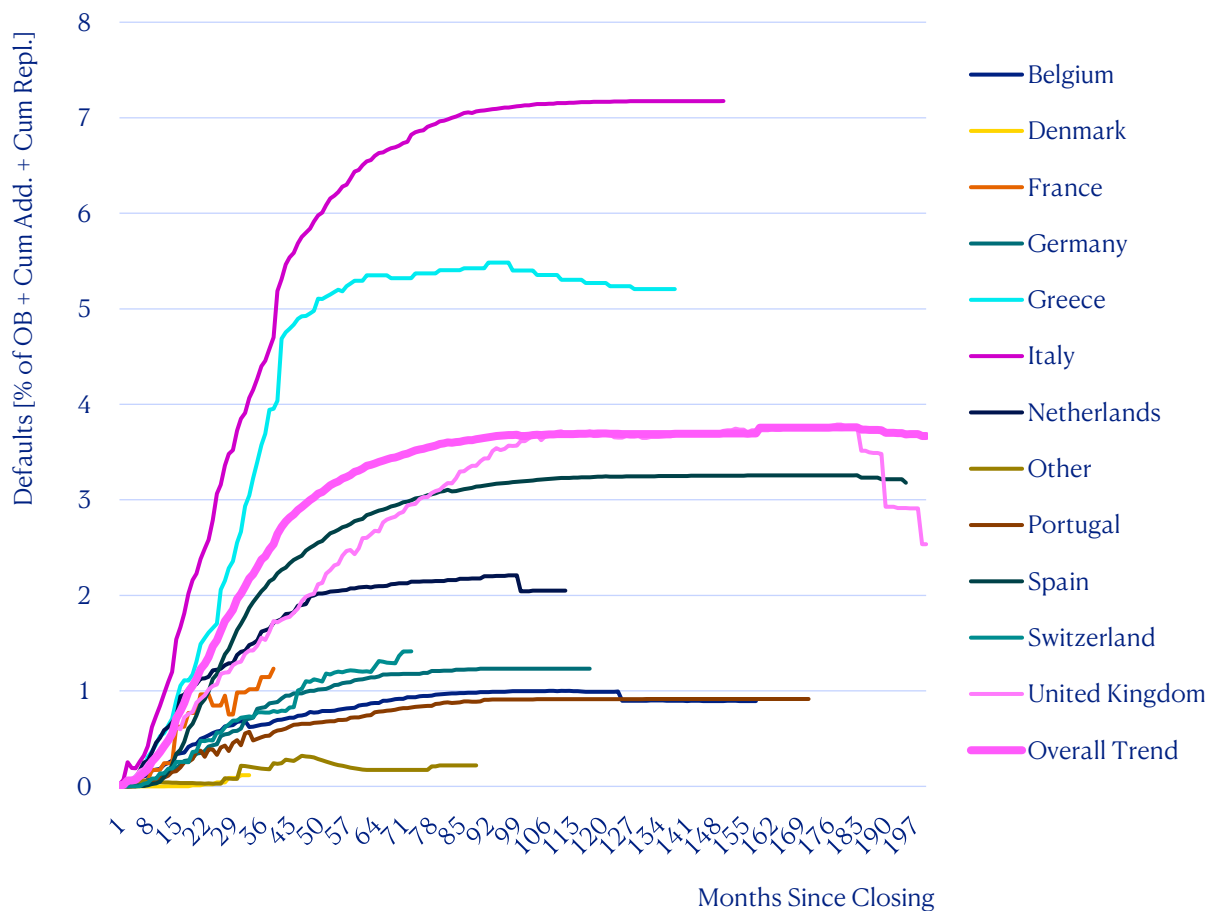
This strong performance has been confirmed by FitchRatings (2021) in a global comparison. The study analysed the realised losses of rated structured finance tranches issued between 2000 and 2020. The analysis therefore includes structured finance notes issued before the global financial crisis as well as more recent vintages, including at the start of the pandemic. According to this update, total expected losses have further declined, to only 0.42% for EMEA. Strong pre-pandemic performance and structural mitigants have supported the structured finance ratings, although asset performance has recently deteriorated (FitchRatings, 2021). S&P (2022) shows that in 2021 – despite the effects of the pandemic – globally the structured finance default rate dropped to 0.6%, well below the one-year average of 3.7%. There were no defaults and no downgrades among European ABS (rated by S&P) in 2021 and the credit performance across European structured finance sectors continued to be more positive compared to US counterparts. The annual default rate of European structured finance fell in 2021 to 0.2%, well below the one-year average of 1% (S&P, 2022). Also ESMA (2023a) states that trends in structured finance ratings composition by sub-asset class have been relatively stable during their reporting period (data coverage so far 2015 to YE 2022).

⁵⁷ For more details see Kraemer-Eis, Passaris and Tappi (2013).

The market turbulences in spring 2023, driven by US bank-insolvencies and the Credit Suisse takeover by UBS had – apart from some short term spread movements - only minor consequences for European securitisations as these are typically based on European loan receivables (Raebel, 2023).⁵⁸

Figure 55 and Figure 56 show the cumulative credit events or defaults on original balance by country and by vintage of the SME transactions in the EMEA region rated by Moody's.

Figure 55: SME loan and lease ABS - Cumulative credit events or defaults on original balance (seasoning by country)*

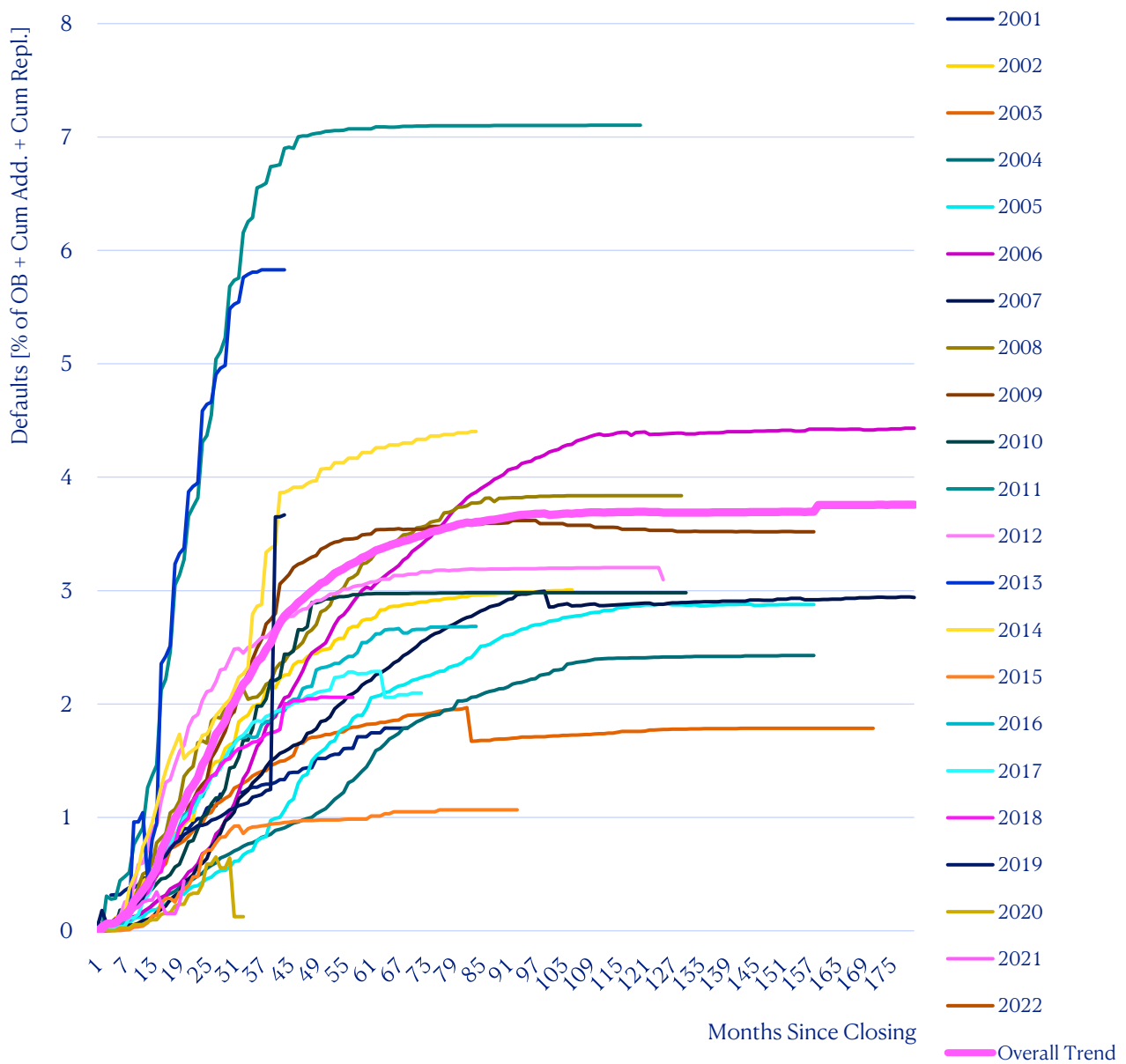


* Terminated transactions are included in the index calculation; hence, here “cumulative” curves can also show a drop. Additionally, Moody's notes show that vintage seasoning charts might move unexpectedly for the last few data points, because transactions start at different points in time within a vintage, and, hence, some transactions may be more seasoned than others. The index includes only the transactions rated by Moody's.

Source: Moody's (2023a)

⁵⁸ Immediately following the Credit Suisse turbulences, there was a significant additional increase in interest in synthetic securitisations as an alternative way to raise capital, driven by reduced interest in AT1 (Additional Tier One) securities. Later-on, the market has normalised again.

Figure 56: SME loan and lease ABS - Cumulative credit events or defaults on original balance (seasoning by vintage)



Source: Moody's (2023a)

Rating transition data confirms the good performance; the example below (Table 5) shows the rating migration of SME Collateralised Loan Obligation (CLO) transactions (rated by Fitch, migration since transaction closing). For example, of all the tranches currently tracked by Fitch and initially rated AAA, 25% (by number⁵⁹) have paid in full (PIF), 75% are still AAA, etc.

⁵⁹ Relative to the number of tranches in a given initial rating category.

Table 5: Fitch European SMEs rating transition matrix (June 2023)*

% of tranches		Current rating									
		PIF	AAAsf	AAsf	Asf	BBBsf	BBsf	Bsf	CCCsf	CCsf	Csf
Initial Ratings	AAAsf	25%	75%	0%	0%	0%	0%	0%	0%	0%	0%
	AAsf	53%	0%	67%	0%	0%	0%	0%	0%	0%	0%
	Asf	14%	15%	43%	43%	0%	0%	0%	0%	0%	0%
	BBBsf	9%	0%	40%	30%	50%	0%	0%	0%	0%	0%
	BBsf	0%	0%	14%	0%	57%	29%	0%	0%	0%	0%
	Bsf	0%	0%	0%	20%	20%	0%	100%	0%	0%	0%
	CCCsf	0%	0%	0%	0%	33%	33%	67%	33%	0%	0%
	CCsf	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Csf	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

* sf indicates Structured Finance

Source: FitchRatings (2023)

5.3.2 | SMESec prospects

Macroeconomic impact

SMEs are especially vulnerable to higher costs/inflation and supply chain disruptions, hence the collateral forecast for most SMESec markets was already negative before the start of the Russian war against Ukraine, varying across countries and sectors (see, e.g. Moody's, 2022a, 2023b).

The already high level of uncertainty - driven by the uneven recovery from the Covid-crisis and the expected scale-back of public economic support schemes that were implemented as response to the pandemic - has escalated further due to the negative economic effects of the Russian aggression. Rising interest rates impact both sides: they add to the financial strain on SMEs, while simultaneously amplifying investors' appetite for higher yields. Moreover, the Israel-Hamas conflict contributes to the uncertainty. The repercussions of this additional crisis will depend on the extent and duration of the conflict and associated geopolitical tensions.

On the one hand, SME default rates are increasing in general – with related impact on SMESec portfolios. Following the Covid-19 crisis, with massive public support for SMEs, insolvencies in most European countries are rising – reflecting economic reality in an environment of inflation, rising interest rates, and overall difficult macroeconomic conditions.⁶⁰ Also, payment moratoria might affect SMESec portfolios. Moreover, SMEs' leverage increases with potential long-term debt affordability issues, especially in case economies experience a slow recovery from current disruptions. On the other hand, also at the beginning of the 2008 crisis there was fear that the SMESec market would suffer in terms of defaults, which was finally not the case (as seen above) – however, the market suffered in terms of activity volumes. Like in the past, structural protection such as subordination levels, reserve funds, or liquidity facilities might limit idiosyncratic and recession risks. Despite the rising default rates in Europe, according to

⁶⁰ See Brault (2023) for a detailed analysis of recent trends in EU corporate demography.

Moody's (2023b), the performance of EMEA SMESec transactions was overall positive (as per early 2023). Moreover, the implementation of the EU restructuring and insolvency framework⁶¹ in many European countries (including the largest four: France, Germany, Italy, and Spain) is seen to be credit positive for European SMESec (Moody's, 2023c).

In the current market environment, risk mitigating factors of the past might lead to a risk increase: often, SMESec exposure is partially secured by real estate properties – with turbulences in real estate markets the value of such collateral shrinks; moreover, the upcoming Energy Performance of Buildings Directive (EPBD) might be credit negative for SMESec that are (at least partially) collateralised by residential or commercial properties (Moody's, 2023d). In addition, public loan guarantee schemes (on pan-European, national and sub-national levels) are playing an important role and often aim to support SMEs, bolstering their ability to remain current on debt obligations over the coming years. Hence, such schemes can have a positive impact on the future performance of securitisation transactions. However, diverging terms and conditions between schemes across different European jurisdictions exacerbate comparability of the schemes and their role for SMESec (Moody's, 2020a and b). Moreover, with the end of the pandemic, there is the trend to reduce the offer of such guarantees.

FitchRatings (2022) ran a plausible, but worse-than-expected, adverse stagflation scenario analysis for structured finance ratings - based on fallout from the Russian war against Ukraine. The effect of this scenario on asset prices, supply chains, industry costs and reduction in consumers' real incomes presents indirect downside asset performance risks. This could intensify with more severe or longer-lasting disruption from the war. According to this analysis, asset performance in the EMEA region is more fragile than in other regions of the world, with most negative impact in the SME space. SMEs are more prone to stagflation risk due to limited market power (fewer possibilities to pass through increased cost); at the same time there might be pressure on the sale side. On the other hand, debt to equity ratios are often lower for SMEs and overall, SME collateral pools are typically diversified and granular (FitchRatings, 2022).

As regards securitisation volumes, we mentioned above the limited primary market SMESec activity. This is also due to the large liquidity in the market, also driven by the low interest rates of the past. The changing market environment can have consequences in different directions. With increasing interest rates, the appetite for true sale securitisations for funding in the market might re-appear, for example in countries such as Poland. On the other hand, the increasing interest rates, combined with in general the tightening credit conditions, lead to shrinking credit demand (for both, companies and real estate). Such reduced origination might have negative consequences for the volumes of future securitisation issuance. On the positive side, tightened credit standards might have positive impacts on the performance of future securitisation transactions.

⁶¹ EU Directive on Restructuring and Insolvency of 20 June 2019 (2019/1023). The directive will help SMEs avoid early bankruptcies by facilitating restructuring plans and will harmonise restructuring frameworks.

Regulatory adjustments

As described, even years after the financial crisis, the European SMESec market had not recovered – and it is now negatively affected by the economic effects of the series of new economic shocks. Several direct and indirect support measures are aiming at a market revival, amongst which are important regulatory adjustments.

In the preceding ESBFOs we presented the different steps as regards the regulatory development post financial crisis (Kraemer-Eis et al., 2019). Moreover, we addressed the important Capital Markets Union (CMU) initiative, as well as the output of the related High-Level Forum and its recommendations for the further development of the securitisation market (Kraemer-Eis et al., 2020). We also discussed the increasing role of synthetic securitisations and the forthcoming regulatory framework for STS synthetic balance-sheet securitisations (Kraemer-Eis et al., 2020). Given the important role of this securitisation type (see also Box 12), potential STS eligibility (which was previously only available for "true sale" securitisations) under the new rules is seen as a very positive development.

Box 12: The revival of the idea of securitisation platforms

Given the high relevance of synthetic securitisations, a working group has been established in Germany to develop ideas for synthetic securitisation platforms. In September 2023, concepts for single-originator and for multi-originator (synthetic pooling transactions) platforms have been presented (TSI, 2023). The ideas build on the successful implementation of KfW's PROMISE and PROVIDE programmes from the year 2000 onwards (until the outbreak of the Global Financial Crisis); also multi-originator platforms have been discussed at the time.

If realised, such platform solutions, presented in the report, might lead to economies of scale through standardization in the areas of structure, legal documentation and data. This results in cost advantages, which would make it easier for smaller banks in particular to access the securitisation market and thus - in the spirit of the Capital Markets Union - enable access to the capital market. The proposals foresee the involvement of the EIF/EIB, KfW and TSI as catalysts.

Following the significant regulatory changes for the securitisation markets, on 17 May 2021, the Joint Committee of the European Supervisory Authorities (EBA, ESMA and EIOPA) issued a report on the implementation and functioning of the securitisation regulation (Joint Committee of the European Supervisory Authorities, 2021). The report provides guidance to the European Commission in the context of its review of the EU Securitisation regulation (SECR). It concluded that the SECR, which became applicable in January 2019, has been useful in increasing the soundness and reducing the stigma of European securitisations. However, it also highlights potential adjustments in order to improve the consistency of the framework, in particular related to transparency requirements, due diligence requirements, STS criteria, as well as supervision.

According to AFME (2022c), securitisation in Europe has become the most highly regulated fixed income asset class. This results on the one hand in a high degree of transparency, but on the other hand also in securitisation becoming unviable for many market participants. The association calls for a balanced review of the regulatory securitisation framework.

On 10 October 2022, the European Commission (European Commission, 2022c) presented a report that takes stock of the development of the market and discusses various aspects of the legal framework. It focusses in particular on 7 items:

1. Risk retention requirement,
2. Due diligence and transparency requirements,
3. Rules and definition for private securitisations,
4. The case for an STS equivalence regime,
5. A regime for sustainable securitization,
6. The function of the third-party verification of STS,
7. The case for establishing a system of limited-license banks to replace the current structure of true-sale securitization built around securitization special purpose entities (SSPEs).

The accompanying consultation revealed market participants' opinion that the new legal framework has been effective with regard to the aim to provide a high level of investor protection. However, a need for further integration of the EU securitisation market was expressed. Moreover, market participants feel that the new framework has so far not brought tangible benefit to the real economy, in particular SME lending.

Overall, the report concludes that “more time is needed to get a full picture of the impact of the new securitization framework. This is all the more so as extraordinary external factors like the Covid-19 pandemic and the accommodative monetary policy of the central banks during that period might have played a significant role in how the EU securitization market has or has not developed since the new framework entered into application” (European Commission, 2022c).

Given the multitude of regulatory initiatives in the context of securitisation (or closely related) we cannot go into details here and refer instead to the regular updates by AFME.

Securitisation and sustainability

Sustainability is gaining importance in securitisation - and in structured finance in general. This trend is driven in particular by investors' demand but also by risk aspects. Also the rating agencies are increasing their efforts towards the consideration of sustainability aspects.

However, the application of existing EU sustainability requirements still needs to be better specified. In our previous ESBFO we discussed already the difference between green securitisation and green bonds as well as different approaches to the consideration of sustainability in the securitisation context.

For example, there are transactions that are specifically designed to support sustainable development or - more widely – transactions structured to incorporate sustainability considerations into “normal” operations. “Green securitisations”, e.g. securitisations that are designed as a means of green financing, exist in different forms. Often, three types are distinguished (James & Parker, 2019): green collateral securitisation (the issuer issues bonds backed by portfolios of “green” assets), green proceeds securitisation (the proceeds of bonds are ring-fenced for investment in green projects), and green capital securitisation (originator uses freed-up capital or leverage from capital relief to invest in green securitisation). Type two and

three are of broader nature and the transactions can be backed by non-green assets (i.e., the use of non-green assets to support “greening”) – such types are in particular relevant in an environment of limited availability of green collateral for securitisation.

The EU taxonomy does not directly apply to securitisation and financial instruments, issued within securitisations, are not “financial products” in the sense of the Sustainable Finance Disclosure Regulation (SFDR). Therefore, under the Capital Markets Recovery Package the EBA has been mandated to publish a report on developing a specific sustainable securitisation framework for the purpose of integrating sustainability-related transparency requirements into the EU Securitisation Regulation (EBA, 2022).

This report (EBA, 2022) was published on 2 March 2022. It recommends adjustments to the proposed EU Green Bond Standard (GBS) as regards securitisation transactions – instead of a dedicated framework for green true sale securitisation, for green synthetic securitisation, and for social securitisation (see Kraemer-Eis et. al, 2022 for a detailed summary). Following the EBA Report, the European Commission may propose further amendments to the securitisation regulation (which is – as described above – currently under review).

The proposed EU GBS Regulation (agreed by the Parliament and the Council of the European Union) was published on 10 May 2023 (Council of the EU, 2023). The GBS is a voluntary designation that can be chosen by issuers seeking to tap the market for green investments. To meet the EU GBS standard, proceeds of the bonds must be used for green purposes (as defined in the EU Taxonomy) and must be subject of a verification by a new type of regulated verification agent (to be regulated by ESMA). Securitisations can also be awarded EU GBS designation. This clarifies that a securitisation can be “green” irrespective of the “greenness” of the assets. However, there is a limited set of financial assets connected to fossil fuels that cannot fall under the EU GBS. Moreover, the co-legislators have mandated additional disclosure as to the sustainability of the securitised assets. Synthetic securitisations are explicitly prohibited from getting EU GBS designation.

Although excluded under the EU GBS, synthetic securitisations might play an important and useful role for the green transition. The EIF Group, for example, applies the use of proceeds concept also for synthetic transactions (i.e. redeployment of the capital released in new lending to SMEs) as an important tool to support the green transition (see Box 13 for an example). In this context, Gonzalez and Giovanetti (2023) propose a concept and scheme how Significant Risk Transfer (SRT) securitisations could be scaled up to aid in the green transition challenge by involving the EIF as a “fronter” (market maker, guarantor, standard setter, etc.).

Box 13: example of a synthetic green securitisation

In September 2023, the EIF signed a synthetic green securitization transaction with LBBW German Landesbank to accelerate the green transition and to reduce fossil fuel dependence. Under the agreement, the EIF fronts a guarantee under a back-to-back guarantee with the EIB on a EUR 175m mezzanine tranche of a EUR 3.2bn reference portfolio consisting of “normal” loans to small and medium-sized companies and other corporates originated by LBBW. The EIF’s guarantee allows LBBW to free up the capital tied to the underlying portfolio, thus freeing up additional lending capacity.

In a Retrocession and Undertakings Agreement with the EIB, LBBW undertakes to convert this additional lending capacity into a new portfolio of EUR 350 million of loans for 100% clean power projects, thus contributing to the decarbonisation of the German economy and to Europe’s energy independence. The amount allocated under this operation is expected to result in the development of about 340 MW of new electricity generation capacity from renewable sources, equivalent to the energy use of more than one million homes. The beneficiary companies will be in Germany, other EU Member States and Switzerland.

The operation is fully in line with the EIB Group’s commitment to support the REPowerEU programme. Renewable energy projects like wind farms and photovoltaic plants often have a maturity of 20 years or more. By generating a new portfolio fully dedicated to climate action and energy security-eligible financing backed by capital that is released on a standard corporate loan portfolio with a significantly shorter maturity, this green securitisation shows how the “use of proceeds concept” can be applied by securitisation transactions.

The EU GBS was adopted on 5 October 2023 by the European Parliament but will start applying only towards the end of 2024 – hence no EU GBS bonds can be issued yet.⁶² Moreover, ESMA needs to authorise verification agents first (PCS, 2023). Therefore, it remains to be seen when the first EU GBS securitisations will be issued. It is also to be considered that the burden for issuers is significant (i.e. complexities of the taxonomy, getting verification, reporting, becoming liable to sanctions) – therefore, much will depend on issuers’ readiness and investors’ appetite (PCS).

There are estimates that 44% of the funding required to meet the requirements of the Paris agreement will need to be based on loans to businesses and households (GFMA & BCG, 2020). This shows that sustainable securitisation might play the role of an enabler in the green transition (AFME, 2022). However, today, sustainable securitisation plays only a minor role in the green transition in Europe. Like the overall securitisation market, also the sub-segment of sustainable securitisation is by far lagging behind its peers from the US or China. AFME (2022) estimates that the contribution of securitisation to the financing of the green transition is currently around 1% in Europe, compared to 50% in the US (and 11% in China).

Overall, as also confirmed by the above-mentioned EBA report, the further development of the overall EU securitisation market is a *necessary condition* for the emergence of an EU sustainable securitisation market. In addition to the challenges that the overall market is facing, the sustainable part is suffering from fragmentation and a lack of standardization (AFME, 2022b).

⁶² The EU GBS becomes applicable after approval by the Council following which the text will be published in the Official Journal of the EU and enter into force 20 days from the date of publication. It will start applying 12 months after its entry into force.

Public support can play a role in driving the growth of sustainable securitisations, and as such not only support the post-Covid recovery, but also the green transition. As a recognized securitisation specialist within the EIB Group (see e.g. Kraemer-Eis et al., 2015) the EIF can for example guarantee junior and mezzanine tranches of sustainable securitisations, leading to higher credit protection for senior tranches, and making them more attractive to institutional investors. Moreover, it can leverage its well-established position in the securitisation market to coordinate with market associations and regulators for common definitions, market standards and practices. Given its good reputation in the market, it can as well coordinate with financial institutions, including National Promotional Institutions, such market practices moving towards standards. Furthermore, based on the technical expertise in securitisation, the EIF can develop methodologies to assess the riskiness of new transaction types in line with standard securitisation techniques.

6 | Inclusive finance

6.1 | Microfinance and social inclusion

6.1.1 | What is Microfinance?

Microfinance is traditionally defined as the provision of basic financial services to low-income people who lack access to banking and related services⁶³. However, more and more often, the definition is used in a wider sense, also to include financial services to existing microenterprises and self-employed (EMN, 2012; EMN, 2017).

The main achievement of microfinance is to reach unbanked⁶⁴ clients, however, in some European countries, bankability is no longer a serious issue. Introducing the concept of Inclusive Finance in Europe, therefore, became a logical continuation of microfinance. Inclusive finance complements microfinance and means not only directly providing finance to vulnerable groups but also providing financial and non-financial products to enterprises who employ or serve those vulnerable groups.

Inclusive Finance is the range of financial and non-financial products and services provided to unemployed people or clients from other vulnerable groups who are facing difficulties in accessing the conventional banking services, due to their socioeconomic status, and more broadly to social enterprises who provide work-integration opportunities or services to groups deemed vulnerable from a socioeconomic standpoint. Inclusive finance promotes entrepreneurship and social inclusion, by providing support to micro-enterprises and social enterprises.

In Europe, microfinance consists mainly of small loans (less than EUR 25,000) tailored to microenterprises and people who aspire to be self-employed but face difficulties in accessing the traditional banking system, while inclusive finance also serves social enterprises and provide loans up to EUR 500,000 (more on social enterprises, see Torfs and Lupoli, 2017). There are many overlaps between the target groups of microfinance and inclusive finance, therefore, both groups are combined in this chapter.

⁶³ CGAP Definition, Consultative Group to Assist the Poor.

⁶⁴ In the context of microfinance, unbanked people are considered those who have limited access to financial services: people who do not have an account with a financial institution due to insufficient funds, cost, distance or lack of necessary documentation.

6.1.2 | A support tool for business and job creation

Mapping target groups for microfinance and inclusive finance is a challenging task. To grasp the magnitude of the market, we look at some important indicators related to unemployment, poverty and social exclusion, entrepreneurial motivation and intentions. These indicators are particularly important to analyse the market for potential entrepreneurs, as a combination of poor labour market prospects and poverty drives people to start new businesses or even create jobs.

In the context of the Europe 2020 social inclusion targets, Eurostat published the “people at risk of poverty or social exclusion” indicator, depicted in Figure 57. The indicator corresponds to the sum of individuals who are at risk of poverty, severely materially deprived, or living in households with very low work intensity.⁶⁵ In 2022, more than one fifth of EU-27 citizens were at risk of poverty and social exclusion, with the highest rates recorded in some Eastern and Southern European countries (Romania, Bulgaria, Greece, Spain). The geographical fragmentation of poverty risk becomes clear when considering the mostly Nordic and Western but also some Central European countries on the other side of the spectrum (Czechia, Slovenia, Poland, Finland).

Europe 2020 aimed at ‘lifting at least 20 million people out of the risk of poverty or social exclusion’ by 2020 compared to the

Definitions for Microfinance and inclusive finance

A microenterprise: an enterprise with fewer than 10 employees and a turnover below EUR 2m (as defined in the Commission Recommendation 2003/361/EC of 6 May 2003, as amended).

A social enterprise: an operator in the social economy whose main objective is to have a social impact rather than make a profit for its owners or shareholders, while operating in a market-driven environment (as defined by European Commission, 2011).

A microfinance institution (MFI): an organisation/financial intermediary that provides microfinance services. There is a wide spectrum of different MFI business models in Europe.

Microcredit in general is defined by the European Commission as a loan or lease under EUR 25,000 to support the development of self-employment and microenterprises. It has a double impact: (1) an economic impact, as it allows the creation of income generating activities, and (2) a social impact, as it contributes to the financial inclusion and, thus, to the social inclusion of individuals.

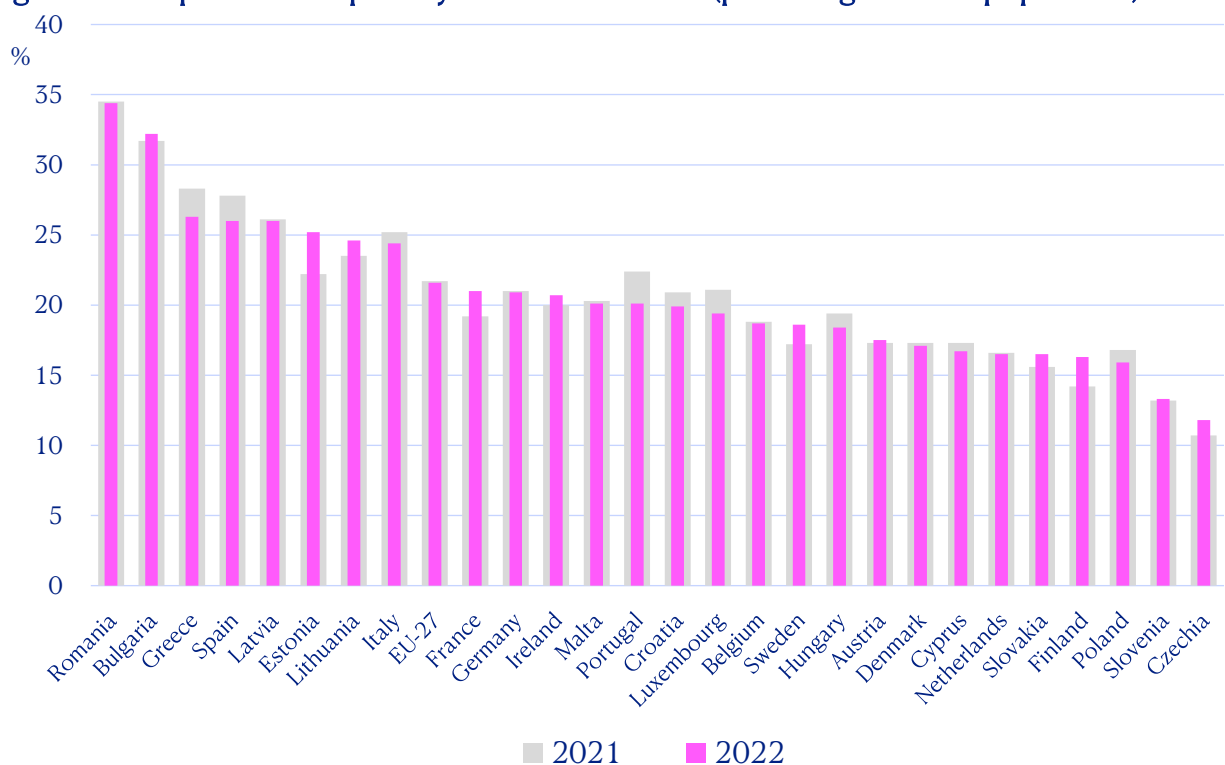
Microenterprise lending: micro-lending to existing enterprises. MFIs focus on the upper end market of microfinance, providing loans to bankable or nearly bankable microenterprises that have difficulties accessing loans up to 25,000 EUR from commercial banks due to risk aversion or lacking liabilities.

Social inclusion lending: lending to self-employed individuals that are excluded from banking services, due to their socioeconomic status of being socially excluded or (long-term) unemployed and/or belonging to financially excluded population groups like ethnic minorities or young people. The average loan sizes are relatively low, meant to support basic income creating activities.

⁶⁵ At risk-of-poverty are persons with a normalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median normalised disposable income (after social transfers). For more information please see: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=t2020_50.

year 2008.⁶⁶ From 2019's estimations, no more than 12 million managed to escape the risk of poverty and social inclusion since 2008 (Eurostat data). Achieving the target became even more impossible due to the Covid-19 crisis, which left additional 3 million people below the risk-of-poverty threshold in 2020. The consequences of the Russian aggression against Ukraine, in particular food and energy inflation further hit the poorest. Some countries still managed to reach their national targets and therefore progressed on their ways to more equality. The most distinct improvements were made by Poland, Hungary, Romania and Bulgaria, mainly due to falls in material deprivation. On the other hand, Spain and Italy, but also Germany, France and the Netherlands regressed compared to 2008. Europe set a new target of reducing the number of people at risk of poverty or social exclusion by at least 15 million by 2030.

Figure 57: People at risk of poverty or social exclusion (percentage of total population)



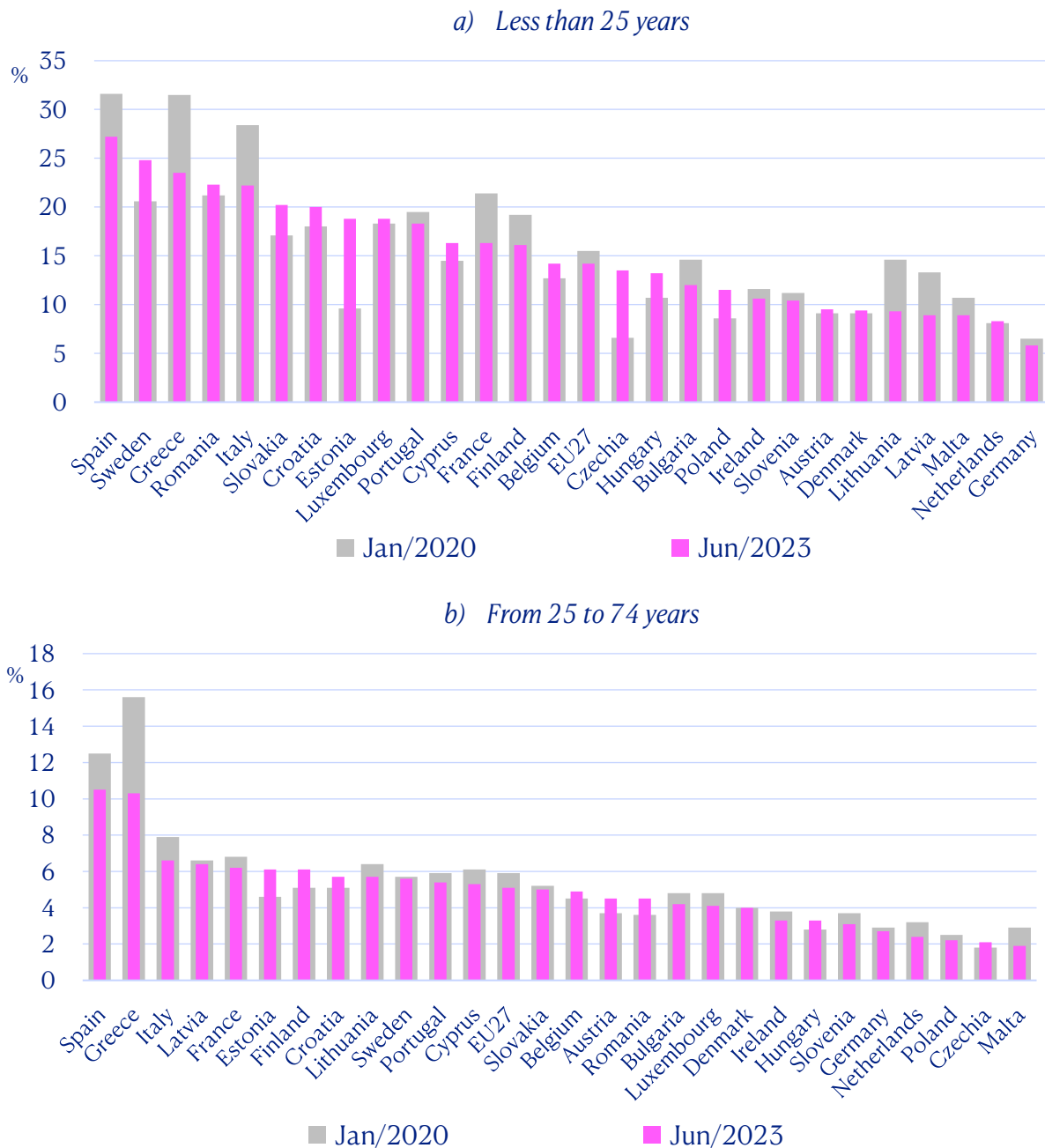
Source: Eurostat, authors' calculations

Figure 58 plots the unemployment rate for European countries. In 2022, labour market conditions improved, partly due to the easing of pandemic-related restrictions and workers transitioning out of job retention schemes. In 2023, the EU unemployment rate reached a record low. Youth employment rebounded to pre-pandemic levels, achieving a new low of 13.6% in 2022, before rising slightly to 14.2% in 2023. Consequently, the employment rate gap between young individuals (under 25 years) and older cohorts has widened again in the first half of 2023, reversing some of the convergence seen since 2020. Despite the labour market's robust recovery,

⁶⁶ Furthermore, the indicator is part of the impact indicators of the Strategic plan 2016-2020, referring to the 10 Commission priorities, and included as main indicator in the Social Scoreboard for the European Pillar of Social Rights. It can be considered similar to the global SDG indicator 1.2.2 "Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions".

real wages have declined, effectively reducing workers' purchasing power (European Commission, 2023b).

Figure 58: Unemployment rate by age groups (2023)



* No recent unemployment data was available for Romania and Italy (from March 2022).

Source: Eurostat, authors' calculations

People at risk of poverty and those unemployed are a significant group of potential business founders, as the need to start a business often arises from necessity, particularly in low-income countries. The Global Entrepreneurship Monitor (GEM) notes that a lack of jobs can push people towards starting their own businesses (Figure 59). Another common reason to embark on

a business venture, especially in low-income countries, is the desire to build wealth or achieve a high income.

In Slovakia, Poland, Romania and Spain the drive to earn a living due to limited job opportunities is the predominant reason for starting a business, pointing to entrepreneurship born out of economic necessity in these regions. In contrast, in countries like Romania, Hungary, and Luxembourg to make a difference in the world is a strong motivating factor.

The goal of creating significant wealth or high income, while notable in low-income countries, does not emerge as a top motivation in the European setting, implying a reduced emphasis on financial gain as the main entrepreneurial goal. Further, the aim to continue a family tradition ranks as the least common reason for starting a business in the surveyed countries, indicating a move towards more personal and socially conscious entrepreneurial motivations.

Figure 59: The motivation to start a business, 2023*



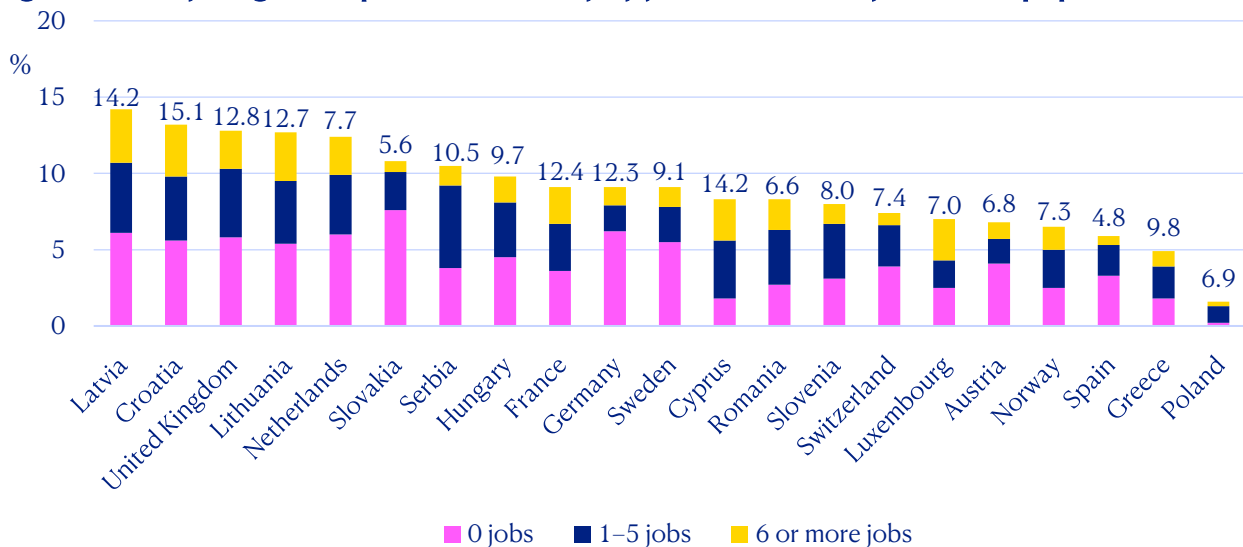
* Somewhat/strongly agree as % Total [early-stage] Entrepreneurial Activity (TEA), multiple answers are possible.

Source: GEM (2023), authors' calculations

The motivation to start a business goes beyond escaping employment and early-stage entrepreneurs are creating jobs or contributing to the current policy goals. According to the

GEM survey, the job creation of early-stage entrepreneurial activity differs across EU countries, and it varies from 7% in Poland to 14.2% in Latvia (see Figure 60).

Figure 60: Early-stage entrepreneurial activity by job creation in 5 years, % of population, 2023



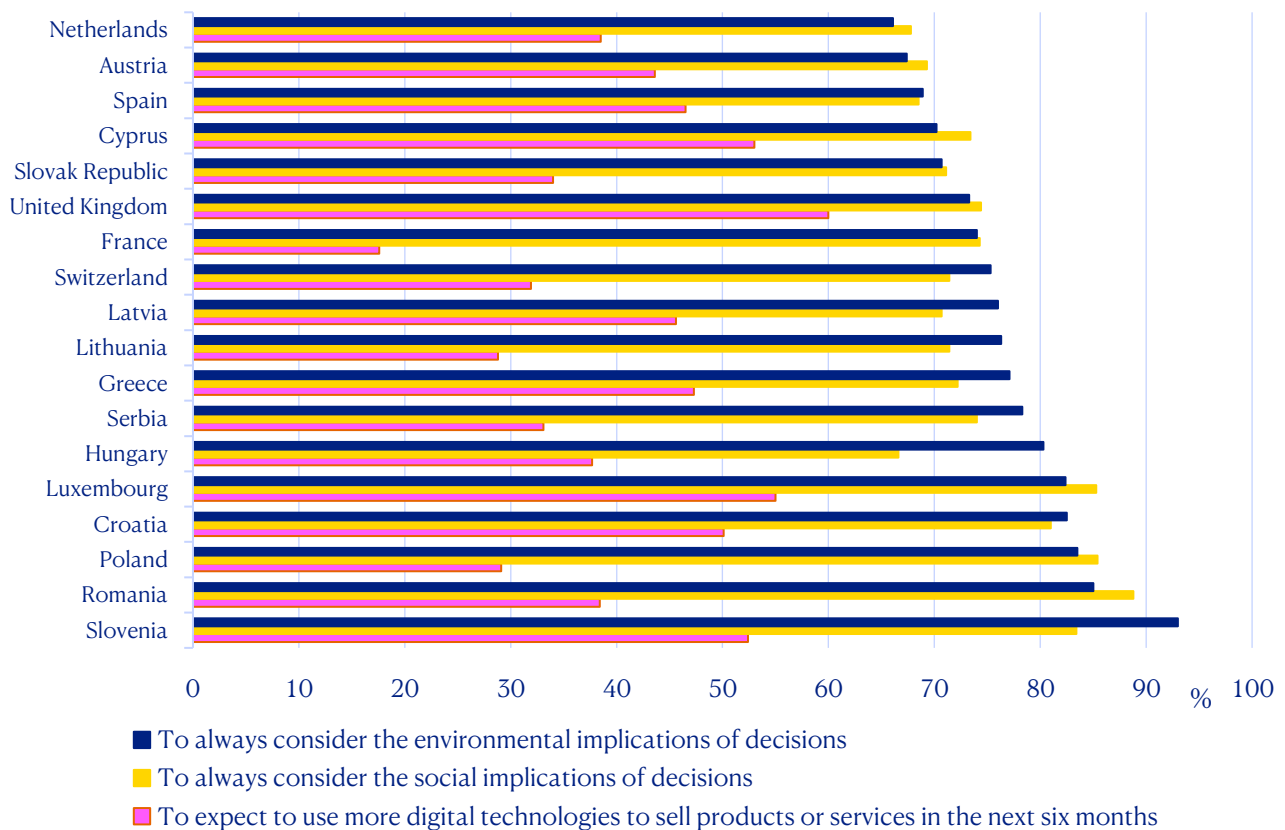
Source: GEM (2023), authors' calculations

In addition to creating employment or tackling other social challenges, many small businesses consider the environmental implications when making decisions about the future of their business (see Figure 61). In Slovenia, Romania, Poland, Croatia, Luxembourg and Hungary more than 8 out of 10 of those starting a business were considering the environmental implications when making decisions about the future of their business. New entrepreneurs are also likely to expect to use more digital technologies in order to sell products and services in the next six months.

The impact of the Covid-19 crisis lingers, particularly affecting the most vulnerable groups in the labour market. This situation worsened due to the war in Ukraine and increasing food and energy prices. Those in unstable, low-paid, and part-time jobs were the first and most severely affected. Freelancers and self-employed individuals also experienced a significant reduction in their activities due to the lockdowns. Although self-employment has returned to pre-pandemic levels for some groups, there remains a significant number of 'missing' entrepreneurs, resulting in a loss of potential ideas, innovation, and jobs for economies (OECD, 2023). In a similar vein, social enterprises, which typically focus on social inclusion, suffered during the Covid-19 crisis with business closures, decreased sales, and challenges in reaching their target groups in person. They also faced obstacles in securing long-term financing (Dupain et al, 2022).

Microfinance supports inclusive entrepreneurship by offering both, financial products and non-financial services. Microfinance is a tool to support vulnerable people to whom self-employment or business creation is a solution to escape unemployment or improve live conditions. Microfinance also supports social enterprises in their mission to tackle social challenges.

Figure 61: Environmental, social and digital strategies, % of entrepreneurs starting a new business (2022)

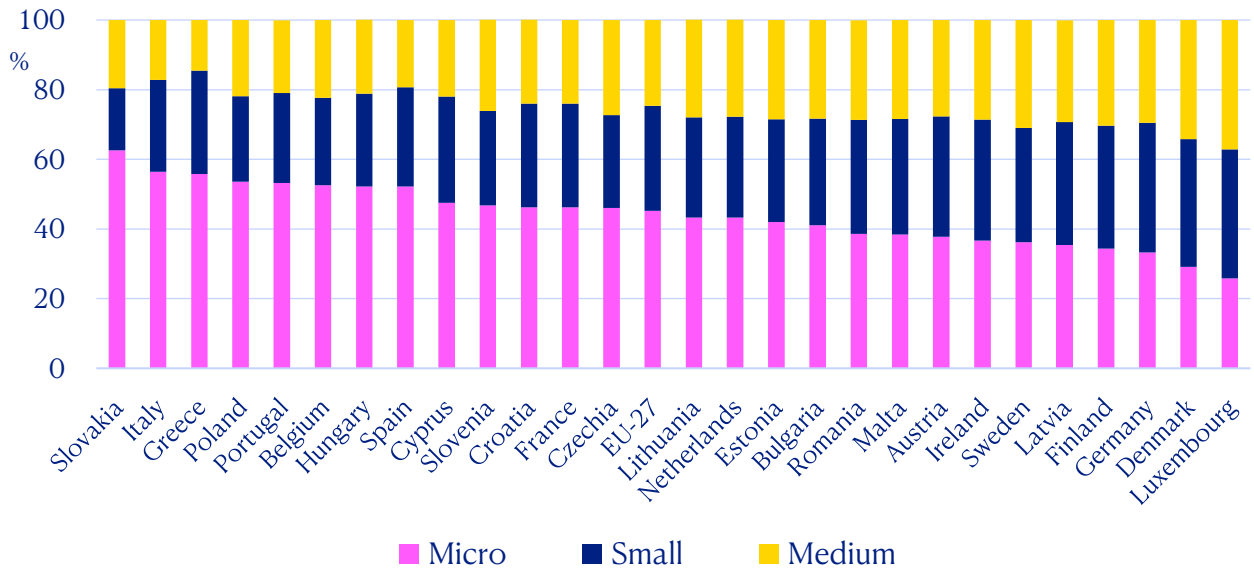


Source: GEM (2023), authors' calculations

6.2 | The demand for microfinance: microenterprises and their finance decisions

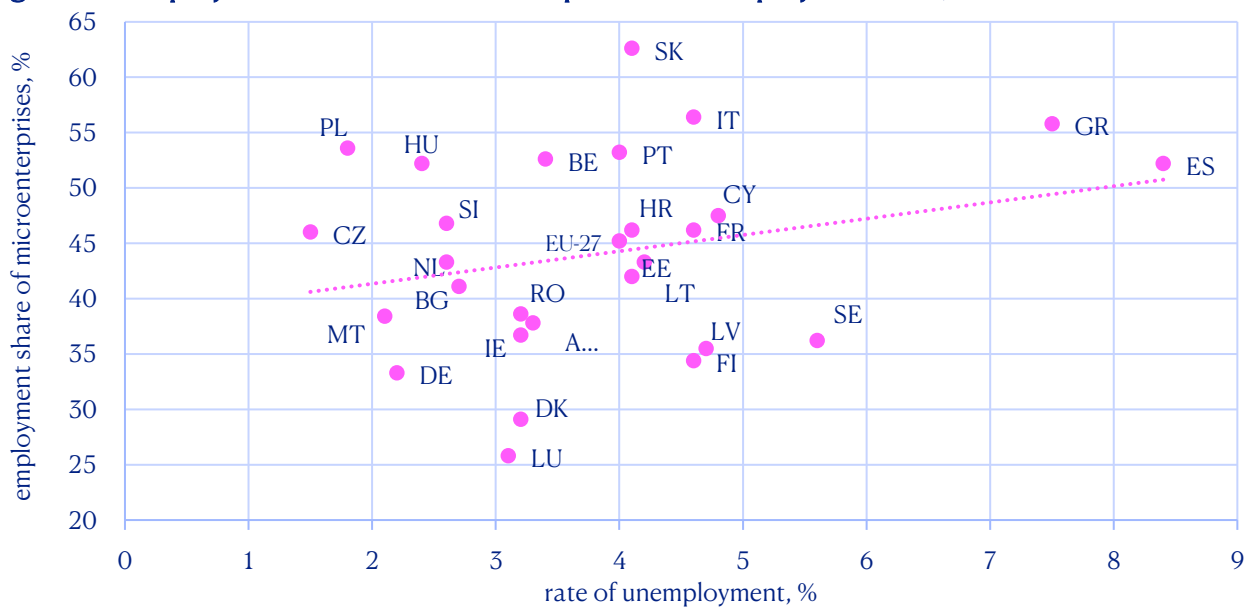
Microenterprises, making up more than 93% of all European businesses, are important contributors to employment as they account for almost 45% of SME employment. In 2022 Slovakia, Italy and Greece reported the highest shares of employment contribution by microenterprises (Figure 62). In general, countries with high proportions of micro-businesses seem to show relatively higher levels of unemployment (Figure 63).

Figure 62: Relative employment share by microenterprises compared to other size classes (2022)



Source: European Commission SBA, authors' calculations

Figure 63: Employment share of microenterprises vs unemployment rate, 2022



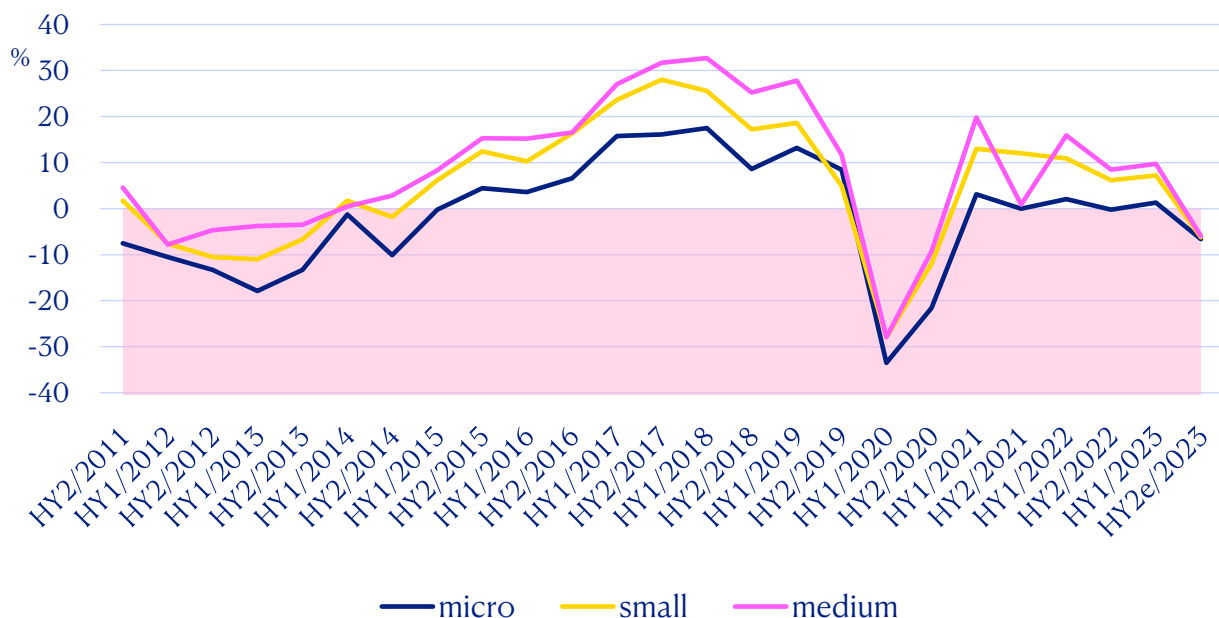
Source: European Commission SBA, Eurostat, authors' calculations

Microenterprises were particularly important contributors to employment in industrial ecosystems such as 'tourism', 'construction', 'cultural and creative industries', 'proximity, social economy and civil society', where they accounted for more than a third of employment.

Microenterprises also performed better in 2021 than small and medium-sized SMEs in terms of their value added generated. When the pandemic started, they were hit the hardest, but they rebounded faster within the SME population. Furthermore, in 2022, microenterprises once again outperformed larger peers, both in terms of value added and employment. Regarding expectations, microenterprises are forecast to experience higher growth in value added and to be the only size class expecting to see positive growth in employment (European Commission, 2023a).

While microenterprises are important for the European economic fabric, they generally face more challenging conditions compared to their larger counterparts. This is evidenced by Figure 64, which illustrates microenterprises' perception about the current economic climate and compares it to larger firms' perception.

Figure 64: Overall situation of European microenterprises compared to other size classes*



* The figure plots net-responses, which are calculated as the share of positive minus negative responses.

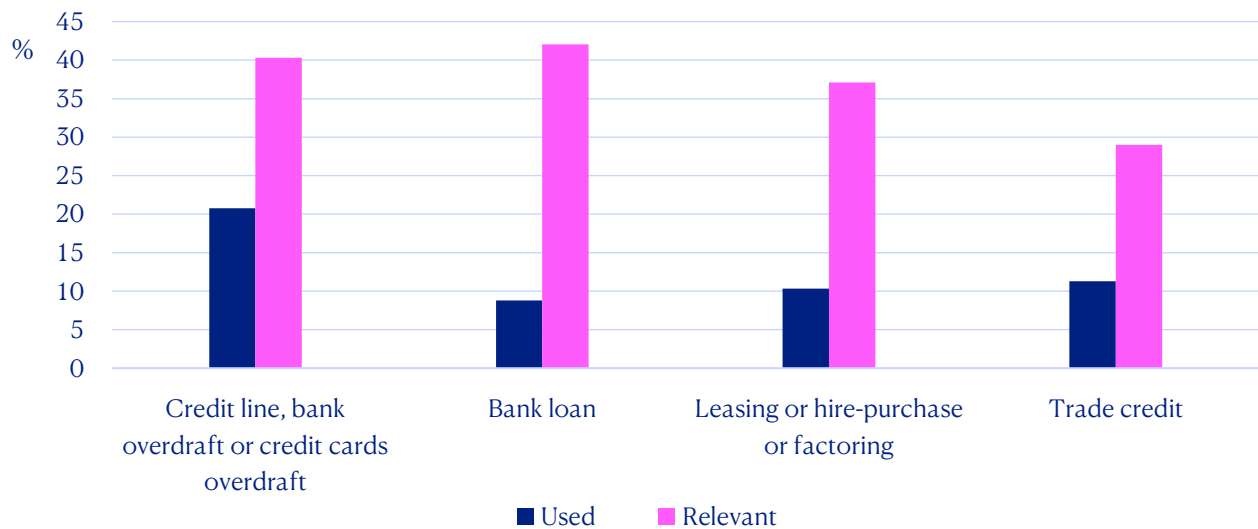
Source: SMEunited (2023), authors' calculations

Up until the second half of 2019, microenterprises were generally optimistic (values > 0), albeit less so than their larger counterparts. Since the onset of the pandemic, conditions have deteriorated for all SMEs, particularly for microenterprises. They reported a record high negative change (-33.5%) in their overall situation in the first half of 2020. Since then, the performance of microenterprises has fluctuated around neutral levels. According to the regular SMEunited survey, microenterprises are anticipating a significant deterioration in their overall situation in the second half of 2023 (SMEunited, 2023).

According to the ECB's SAFE survey, microenterprises use less external financing instruments than their larger peers, presumably due to difficulties in accessing finance (Figure 65). For example, bank loans are used by 14.9% of small companies and 20.9% of medium companies,

while only 8.8% of microenterprises used bank loans. Interestingly, more than 42% of the microenterprises indicated that bank loans are relevant sources of financing, far exceeding the rate at which they use it. Fifty-eight percent of the microenterprises considered bank loans not to be a relevant source of financing. Microenterprises indicated that too high interest rates or price was the most important reason for bank loan not being relevant (increased from 8% in 2022 to 13%), (Figure 66).

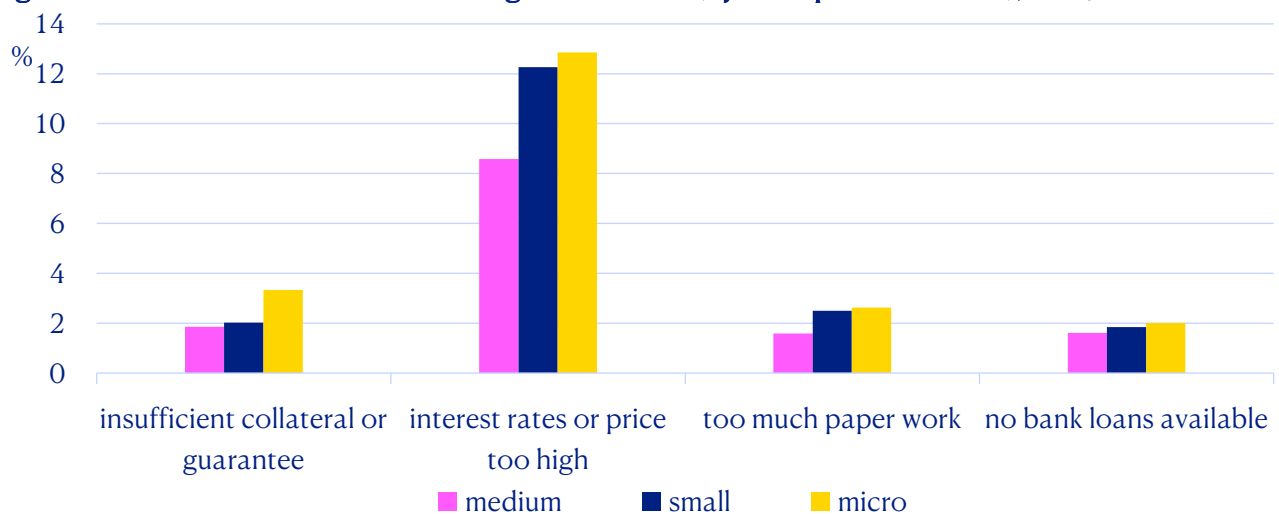
Figure 65: Relevance and use of different financing sources for microenterprises (HY1/2023)



Source: ECB SAFE (ECB, 2023a), authors' calculations

The same survey states that the bank loan rejection rate is still the highest for microenterprises (8.4% down from 12.2% in HY2/2022), compared to 6% for small firms and 4.8 % for medium-sized firms. Consequently, the share of microenterprises that did not apply for a loan due to fear of rejection (discouraged borrowers) has decreased to 5.7% (from 7.3% in 2022).

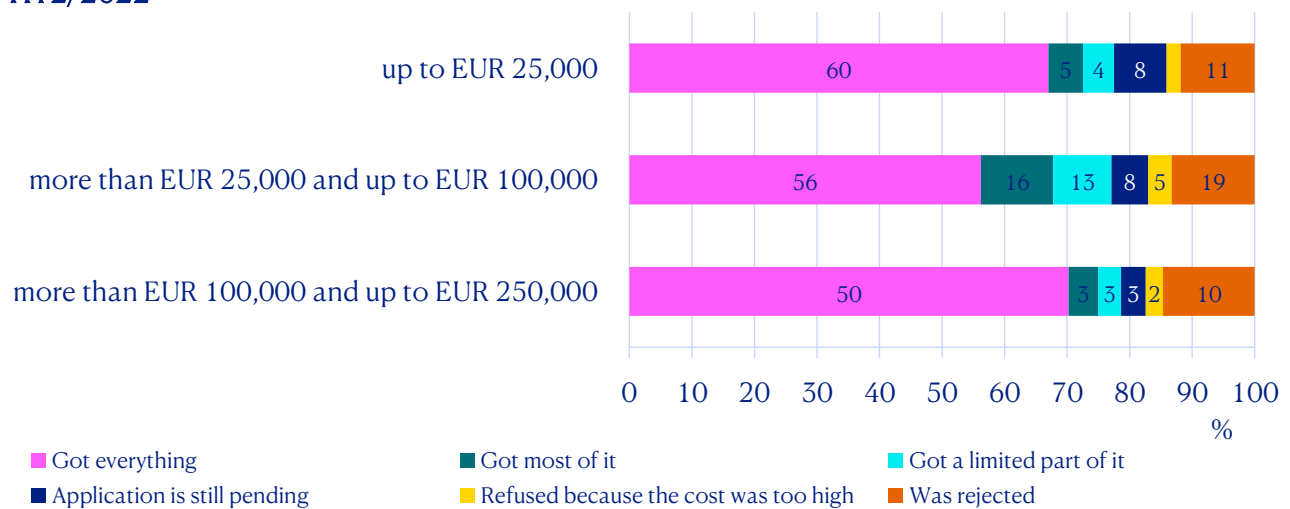
Figure 66: Reasons for bank loans being not relevant (by enterprise size class), HY1/2023



Source: ECB SAFE (ECB, 2023a), authors' calculations

It appears that larger loan requests face higher rejection rates. Microenterprises more commonly apply for loans ranging from EUR 25k to EUR 100k. Conversely, loans below EUR 25k, which are pursued by less than a quarter of microenterprises, have a lower rejection rate. This suggests that microenterprises in need of substantial funding continue to encounter significant obstacles to growth (Figure 67). Scaling up businesses is particularly challenging for entrepreneurs from disadvantaged groups. Not only do they struggle with accessing finance, but they also confront additional hurdles such as a lack of entrepreneurial skills and smaller business networks (OECD, 2023).

Figure 67: Application status of bank loans requested by microenterprises (by loan size), HY2/2022



* The figure is based on responses from 372 European microenterprises who applied for bank loans in the past six months. The numbers inside the bars refer to the number of respondents per category

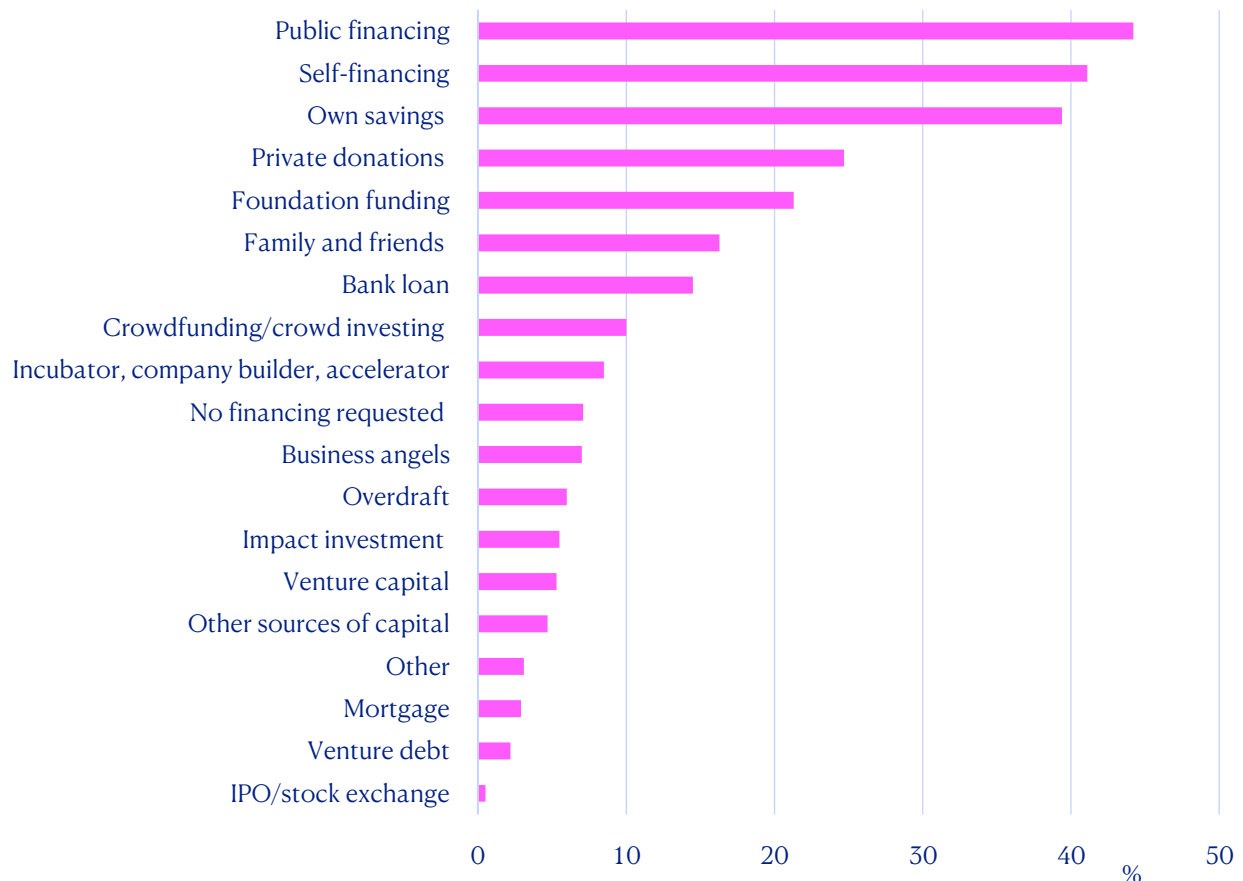
Source: ECB SAFE data, authors' calculations

As microenterprises do not frequently use bank loans due to insufficient collateral, high interest rates and excessive paperwork, rejected or discouraged customers often turn to an alternative solution: microcredit from microfinance institutions (MFI). MFIs do not always charge lower interest rates than banks, but they are less demanding in terms of collateral and guarantee requirement. Clients find MFIs more personal, tailor-made and simple; MFIs “know their customers”.

Regarding Social enterprises' (SE) approach to financing, the most frequent source of funding sought over the past 12 months is public financing (44.2% of SEs), according to a recent survey of social enterprises in Europe (Dupain et al., 2022). Other sources of financing include self-financing through cash flow (41.1%), and their own savings (39.4%). This blend of sources highlights both their reliance on public support and their market-oriented, self-reliant nature. Interestingly, the least sought financing options were initial public offerings (IPOs) and stock exchanges (0.5%), venture debt (2.2%), and mortgages (2.9%). The low interest in these options is not surprising since most SEs are small in size, so not yet ready for public trading (see Figure 68).

The study also found a correlation between the SEs' development stage and their preferred financing types. Early-stage SEs (seed and startup phases) often relied on personal savings, friends and family contributions, and incubator/accelerator funding. While at later stages they more frequently sought public financing, bank loans and private donations.

Figure 68: Source of financing for social enterprises



Source: Dupain et al. (2022).

The study further reveals that SEs were generally successful in securing financing. Public financing was the most successful source, with 38.3% of finance-seeking SEs obtaining some funding. Mortgages, private donations, and foundation funding also had high success rates, with success rates for mortgages, private donations, and foundation funding being 83.9%, 82.6%, and 81.8% respectively. Crowdfunding and financing from family and friends were also successful (both at 80.5%). In contrast, venture capital had the lowest success rate (60.8%), followed by venture debt (61.9%) and business angels (63.9%). The highest rates of unsuccessful attempts were in venture capital (17.6% denials) and business angels (16.5% denials).

6.3 | The supply of microfinance: green and digital transformation

The microfinance market in Europe is highly fragmented and diverse, with no common business model - see for example, Kraemer-Eis and Conforti (2009) and Bruhn-Leon, Eriksson and Kraemer-Eis (2012). Part of this fragmentation has geographical roots, as the role of microfinance is seen very differently across Europe. In Western Europe, microfinance is considered to be a social policy tool, as it serves businesses that are not commercially attractive for the mainstream financing providers, but nevertheless are able to create social value. On the other hand, in Eastern Europe, microfinance is seen more as a business activity which targets viable microenterprises that are financially excluded because the traditional credit market remains underdeveloped.

European microfinance providers

European microfinance providers are very diverse across Europe. In addition to commercial banks that target microenterprises as part of their general SME lending activity, the spectrum of European microcredit developers includes many profit-oriented and non-profit associations: banks (both private and state-owned), non-bank financial institutions (NBFIs), microfinance associations, credit unions, cooperatives, government bodies, religious institutions and Non-Governmental Organisations (NGOs).

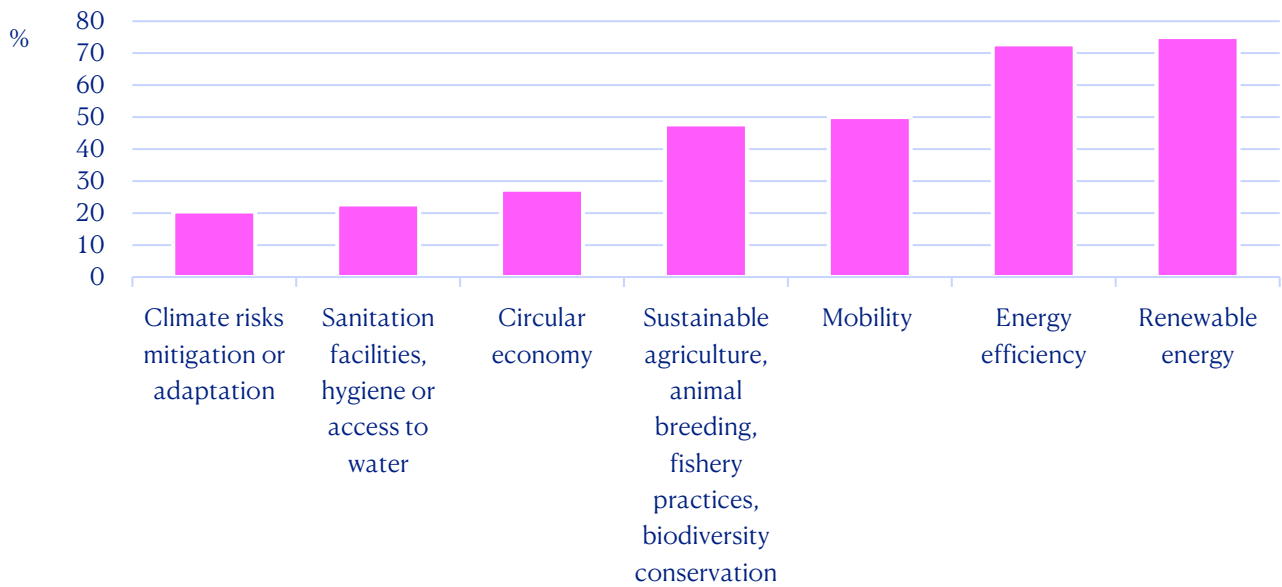
The microfinance landscape in Europe has continued to evolve and expand. The latest EMN market survey data show that, by the end of 2022, the gross microloan portfolio reported by 156 microfinance Institutions (MFIs) has grown to EUR 5.51 billion. This portfolio is evenly divided between business and personal microloans, each category accounting for approximately 50% of the total, with values of EUR 2.44 billion and EUR 2.42 billion, respectively.

The number of active borrowers has reached approximately 1.3 million, with personal microloans serving 68% of these clients, indicating a shift towards personal finance. The business microloan portfolio, while serving fewer clients, 32% of the total, remains a substantial focus for the MFIs. In addition to financial products, a vast majority of MFIs (86%) also offer non-financial services.

Green finance: In the current landscape of European microfinance, the sector has shown a commitment to contributing to the green transformation, aligning with broader initiatives in SME finance. Green finance is receiving growing interest, with 24% of MFIs offering dedicated green products and 33% providing them through standard offerings. However, 45% of MFIs still do not provide specific green microloans (see Figure 69). Those offering green finance are focused on renewable energy and energy efficiency solutions, with 75% and 73% of MFIs engaged in these areas, respectively. Other significant areas include sustainable agriculture (48%) and mobility (50%), (EMN-MFC, 2024)⁶⁷.

⁶⁷ The survey figures presented in this chapter are preliminary results from EMN-MFC Microfinance Survey 2024.

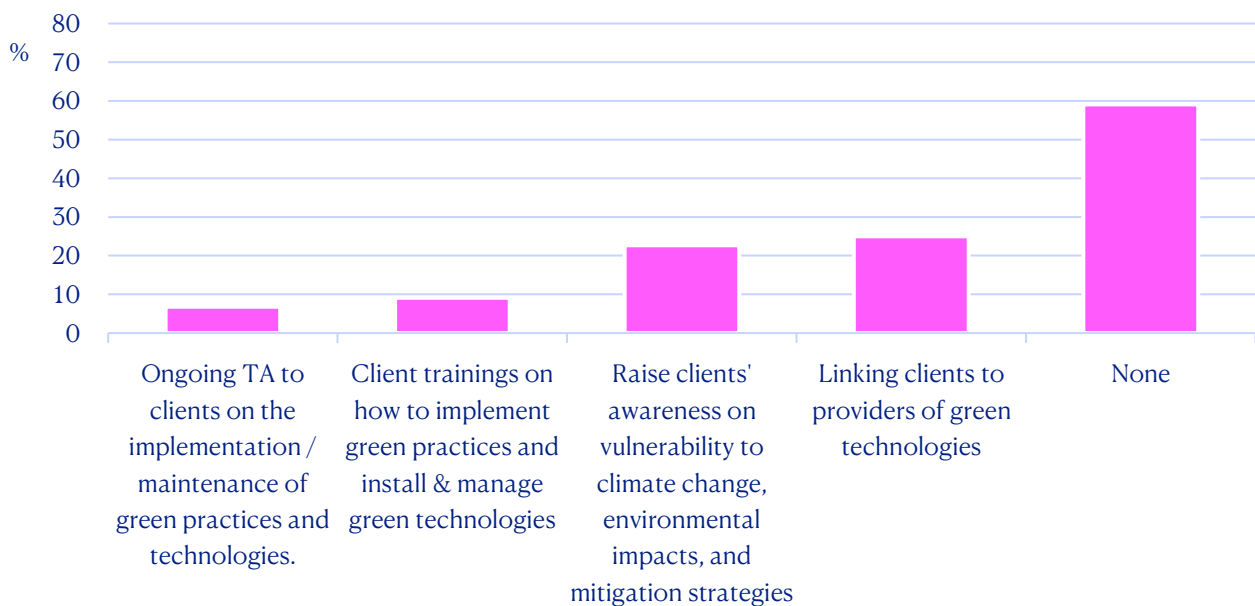
Figure 69: Purpose of green loans (2022)



Source: EMN-MFC, (2024)

Despite the fact that 59% of MFIs do not offer green non-financial services, there is a significant portion of the sector engaged in training clients on green practices and connecting them with providers of green technologies. This indicates a strategic move towards not only providing financial support but also empowering clients to adopt and maintain green practices.

Figure 70: Type of green non-financial services offered (2022)



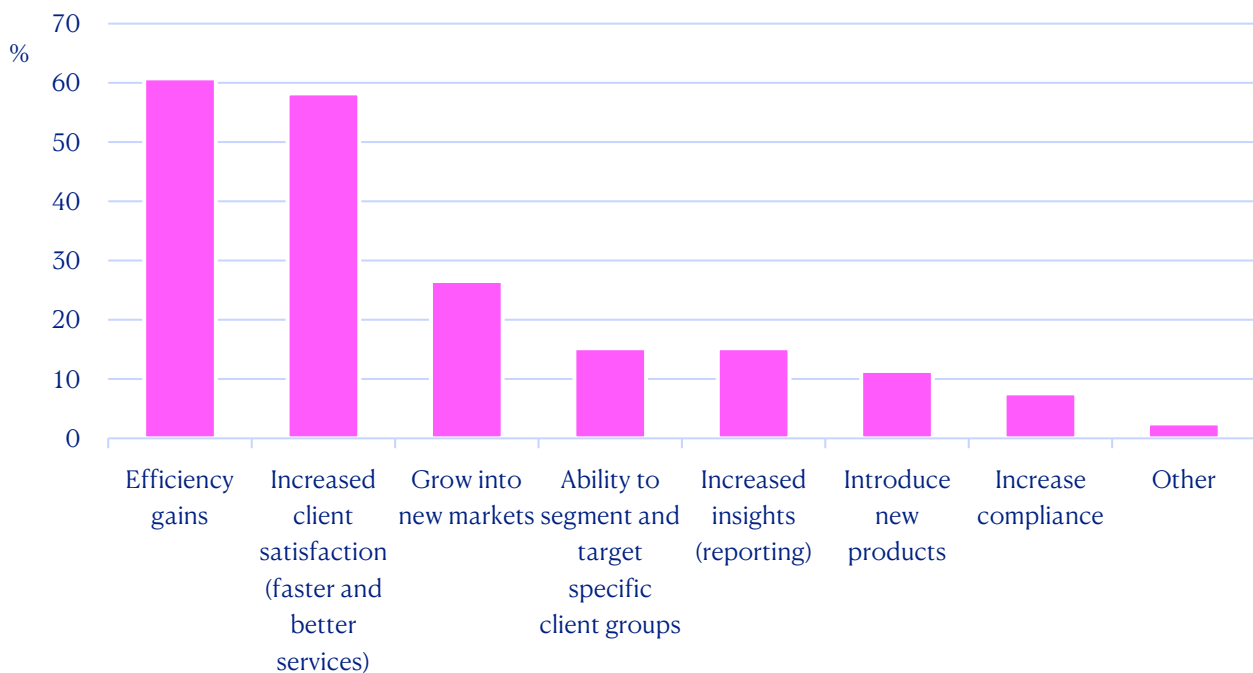
Source: EMN-MFC (2024), authors' calculations

MFIs are encountering several key challenges in the green transition. Firstly, there's a noticeable lack of awareness among their clients about climate change vulnerability, coupled with a reluctance to adopt green technologies. These technologies, although often costly, are considered worthwhile investments. Another major hurdle is the difficulty in developing new green financial products or adapting existing ones to be more environmentally friendly.

To address these challenges, MFIs are seeking support on multiple fronts. They primarily require technical assistance to innovate and create green financial products. Additionally, they need guarantees to broaden their reach to clients who are more vulnerable to climate risks. Further, extra funding is crucial for disbursing a greater number of green loans. Finally, MFIs are looking for grants and subsidies to enhance their provision of non-financial services, further supporting their clients in the transition to green practices (EMN-MFC, 2024).

Digitalisation: The integration of digital capabilities is a pivotal component of the strategic planning for European MFIs, with 72% of institutions considering it a critical element of their 3-to-5-year strategy. This emphasis on digitalisation is aimed at achieving significant operational improvements, specifically to enhance client satisfaction and to streamline internal processes for better efficiency, with 58% and 61% of MFIs, respectively, identifying these as key objectives.

Figure 71: Two key aims achieved with digitalisation

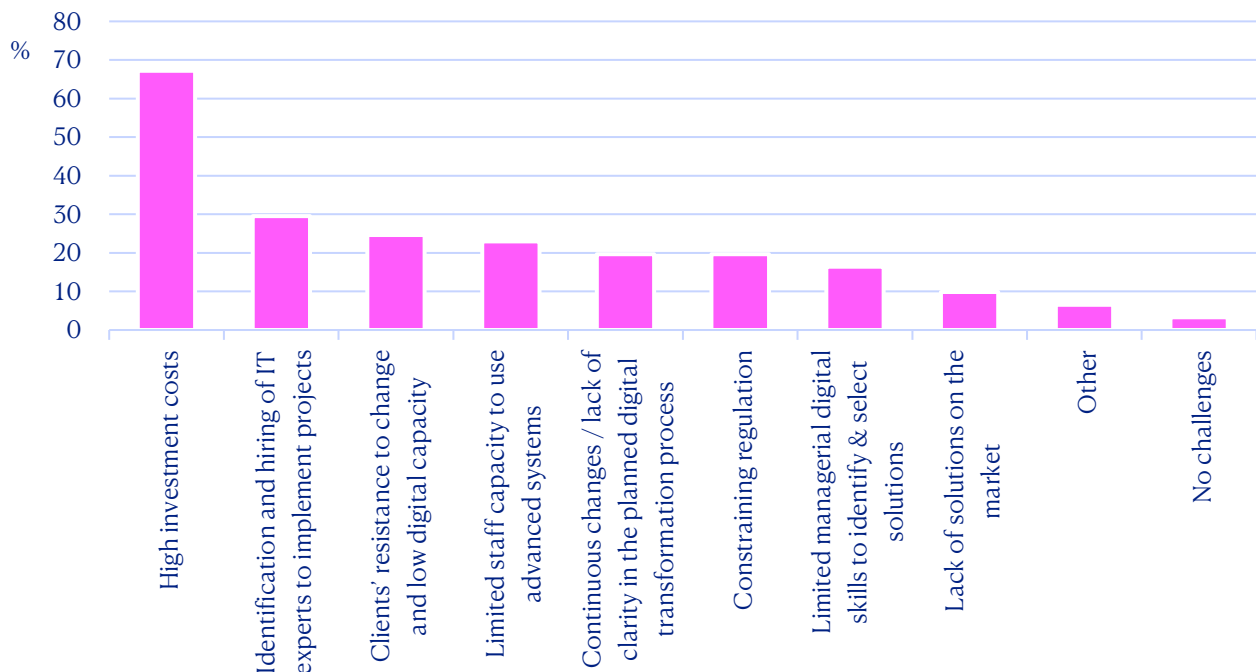


Source: EMN-MFC (2024), authors' calculations

Digitalisation strategies are not without their challenges, however. MFIs are grappling with high investment costs, cited by 67% of the institutions as a primary concern (see Figure 72). Additionally, recruiting IT experts to lead these initiatives poses a challenge for 30% of the MFIs.

Resistance to digital transition, both from clients and internally due to limited staff capacity to utilise advanced systems, is another significant hurdle.

Figure 72: Challenges related to digital transformation



Source: EMN-MFC (2024), authors' calculations

Despite the challenges, MFIs are committed to using digital transformation as a tool for expanding into new markets and gaining deeper insights into client needs. This proactive approach is not just about keeping pace with changes, but about redefining how services are delivered and operational efficiency is achieved, aligning with the larger financial sector's push towards digital innovation. To realise these ambitions, MFIs require substantial funding for IT investment and development, given the high costs involved. Additionally, there's a need for technical assistance to develop digital strategies and to enhance the digital skills of their staff. Similar to the needs for green transformation, grants and subsidies are essential for providing non-financial services to clients, especially those with limited digital skills.

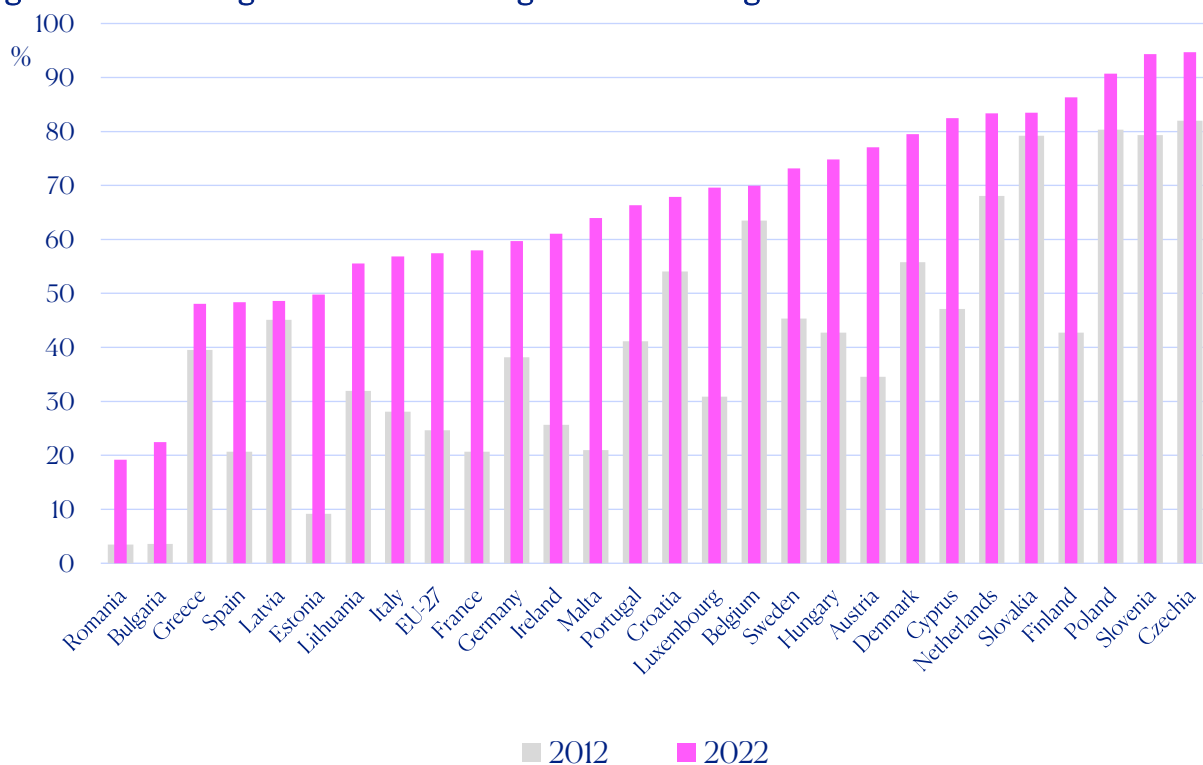
Furthermore, the funding needs of MFIs extend beyond green and digital transformations to include the provision of support to vulnerable population segments, central to the mission of microfinance. Primarily, MFIs are in search of borrowed funds, which continue to be the main source for financing their loan portfolios. The most common sought-after amount is upwards of EUR 10 million. When it comes to equity, MFIs generally look for smaller amounts, with the most frequently cited range being between EUR 1-5 million. This financial support, coupled with technical assistance, is key to enabling MFIs to reach and serve those most in need, thus fulfilling their fundamental objectives.

6.4 | Access to finance challenges for microenterprises

The challenges for microenterprises to access external financing are even greater than for other (bigger) types of SMEs. These are typically young firms without prior track record or formal reporting obligations. In addition, necessity-driven entrepreneurs are highly unlikely to meet the required collateral requirements often demanded by traditional lenders (OECD/ European Commission, 2014). This implies that credit rationing becomes particularly relevant for this sub segment of the market. This section presents some indicators that illustrate how access to finance often is restricted for vulnerable labour market segments and microenterprises.

At its most basic level, financial inclusion starts by having access to a simple bank account. However, while the European population with banking accounts keeps growing, a large share of the adult population is still left behind by the mainstream banking system (Global Findex database). Digital technology increases financial inclusion. In the past 10 years the share of EU-27 population using internet banking tools more than doubled. Internet coverage in some European countries reached almost 100%. However, in many countries (especially in countries with high unemployment rates), digital payments seem equally inaccessible as financial accounts (Figure 73).

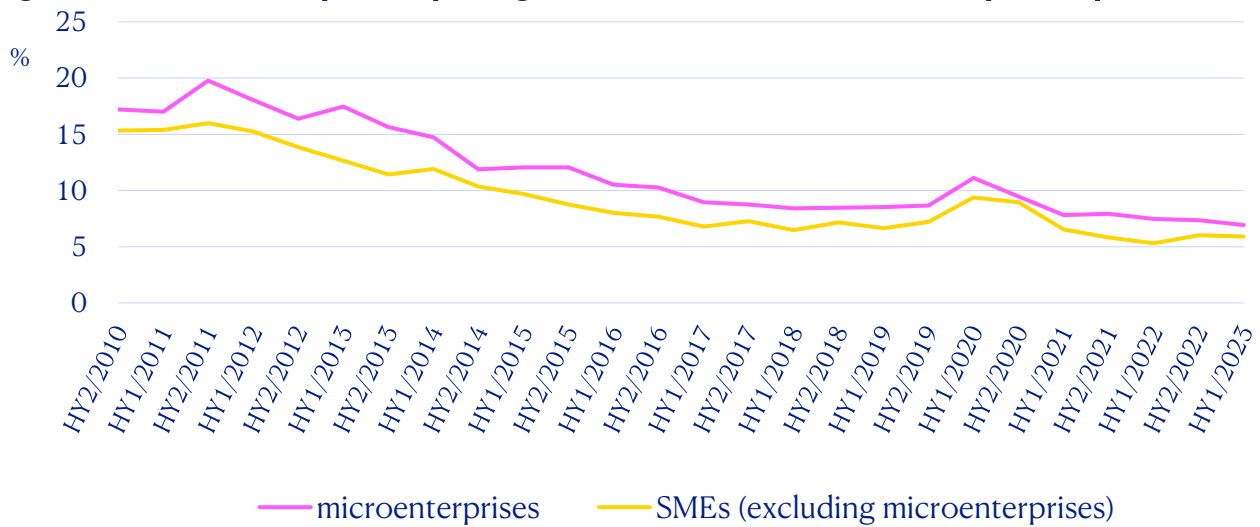
Figure 73: Percentage of individuals using internet banking



Not being digitally well equipped was particularly problematic during the pandemic since usage of financial technology has become critical during the office closures and social distancing due to Covid-19.

The ECB SAFE survey in the Euro area (ECB, 2023a) provides additional insights in the financing situation of European microenterprises. According to the latest SAFE survey, the share of microenterprises which see “access to finance” as their most important problem slightly decreased but still exceeds the share of bigger SMEs facing the same problem (Figure 74).

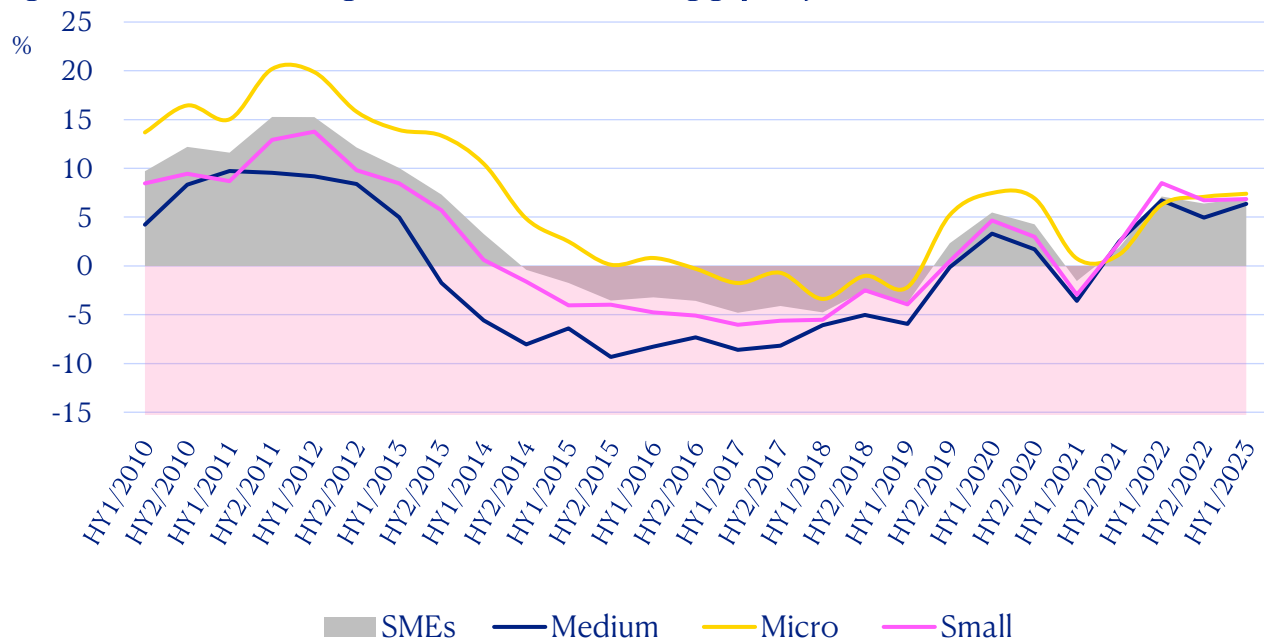
Figure 74: Share of enterprises reporting access to finance as their most important problem



Source: ECB SAFE (ECB, 2023a), authors' calculations

Figure 75 shows how microenterprises report changes in their perceived financing gap and compares this to other SME size classes. It is apparent that microenterprises believe they operate in a more challenging environment than larger SMEs, as they are consistently less optimistic about their financing situation.

Figure 75: Perceived change in the external financing gap* (by firm size)



* The financing gap indicator combines both financing needs and availability of bank loans, credit lines, trade credit, and equity and debt securities at firm level. A positive value of the indicator suggests an increasing financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages. A negative financing gap indicates that the increase in the need for external financing is smaller than the improvement in the access to external financing.

Source: ECB SAFE (ECB, 2023a), authors' calculations

6.5 | Microfinance prospects

Microenterprises in general, and workers from vulnerable labour market segments that cherish entrepreneurial ambitions, have particularly been hit by the Covid-19 crisis. The consequences of the Russian aggression against Ukraine, in particular food and energy inflation, further hit the most vulnerable. As discussed below, both microenterprises and microfinance providers in Europe are facing challenges.

Affordable finance: Access to affordable finance is critical for microenterprises, who often find bank loan interest rates prohibitively high, a situation worsened by recent increases. Many turn to MFIs for microcredit, although interest rates can be even higher, especially in Eastern Europe. Proposed interest rate ceilings to ease repayment burdens must be balanced to avoid harming the most disadvantaged borrowers. A promising solution is reducing lending costs through digitalisation, despite the high costs associated with such technological adoption by MFIs.

Growth potential: Microenterprises with growth potential are crucial for job creation, but those from disadvantaged groups face notable challenges in scaling up. Besides difficulties in accessing finance and securing larger loans for expansion, they often lack entrepreneurship skills and have limited business networks. Microenterprises need access to larger loans and training programs, along with opportunities to build business networks. These resources are crucial for those from disadvantaged groups who face significant challenges in scaling up. By offering this

combined financial and educational support, microenterprises can overcome growth barriers and play a more substantial role in job creation.

Skills: The post-pandemic labour market shows an increase in job vacancies and labour shortages. Many of these vacancies may require new skill sets. For unemployed individuals and those from vulnerable groups, skill development through coaching and mentoring is crucial. European MFIs often provide non-financial services such as technical assistance and training, though this can be financially challenging without public support.

Digitalisation: Digitalisation has streamlined loan processing and expanded outreach, especially beneficial for remote clients. The Covid-19 pandemic accelerated the need for digital capabilities in microfinance. Beyond providing financial products digitally, MFIs are now positioned to conduct client training and mentoring remotely. Integrating digital capabilities remains a crucial aspect of strategic planning for European MFIs, directed towards substantial operational improvements, particularly in improving client satisfaction and streamlining processes for greater efficiency. Nevertheless, the transition to digitalisation brings its own set of challenges, among them the significant costs of investment faced by MFIs. Additionally, there's a need for technical assistance to develop digital strategies and to enhance the digital skills of their staff.

Green: In the current landscape of European microfinance, the sector has shown a commitment to contributing to the green transformation, aligning with broader initiatives in SME finance. Microfinance can support green ambitions of newly created businesses or green transformation of existing businesses. This is because entrepreneurship can provide solutions to many of the world's most challenging economic, environmental, and social issues. In order to engage in green micro-lending, institutions need financial support to help their clients in learning to green their operations. They also seek for guarantees and on-lending borrowings. In terms of non-financial support, institutions need technical assistance to develop new green products.

Social enterprises: Social enterprises are essential in addressing the pressing social and environmental challenges of our times, such as climate change, the Covid-19 pandemic aftermath, the ongoing war in Ukraine, and the surge in inflation. However, they often struggle to operate and expand due to a widespread lack of awareness about their role and impact among the general public, financial institutions, investors, and support agencies. This gap in understanding significantly hampers their financial prospects. There is a clear need to enhance the recognition of social enterprises and to increase support for them, to improve the conditions that allow their crucial contributions to advance.

MFI funding needs: MFIs' funding efforts are centered on aiding vulnerable segments, a critical element of their mission. While they mainly rely on borrowed funds for their loan portfolios, the equity sought is relatively modest in comparison. The combination of financial support and technical assistance is vital for MFIs to effectively serve those most in need, aligning with their primary goals.

Given the current difficult conditions, support on a European level has become of central importance – via funding, guarantees and technical assistance to a broad range of financial

intermediaries, from small non-bank financial institutions to banks well-established in the microfinance or social enterprise finance market– in order to build a full spectrum of the European inclusive finance sector. The EIF currently supports microfinance and social entrepreneurship under The European Commission’s Programme for Employment and Social Innovation (EaSI). EaSI offers the following three instruments: (i) the EaSI Guarantee Instrument to increase access to finance for microenterprises, social enterprises and vulnerable groups, (ii) the EaSI Capacity Building Investments Window to help build up the market via investments (e.g. scaling up or developing IT infrastructure (mobile banking), recruitment and training of staff, strengthening operational and institutional capabilities or seed financing support of newly created intermediaries with a strong social focus) and (iii) the EaSI Funded Instrument launched in the fourth quarter of 2019. Through the investment fund, the EIF provides senior and subordinated loans to financial intermediaries for on-lending to micro-borrowers and social enterprises.

In 2023, the EIF has continued the Implementation of InvestEU under the Social Investment and Skills Window, experiencing strong demand for both guarantees and capacity building investments in the target areas of microfinance and social enterprise finance. Aggregate signed commitment is expected to have reached around EUR 250m by year-end 2023 with a further acceleration of expected signed commitments in 2024 to meet Next Generation EU targets. Given the heterogeneity of the EU market in the inclusive finance field, the EIF works with a very wide range of financial intermediaries such as non-bank microfinance institutions, fintech lenders, crowdlending platforms, promotional institutions and agencies, alternative lenders and funds, cooperative banks and to a limited extent, commercial banks.

7 | Fintechs

7.1 | The role of Fintechs in the financial system

The Basel Committee on Banking Supervision defines Fintech as “technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services”. The term Fintechs can also refer to companies that pursue a business model of digital financial innovation. Innovations in financial technology occur in a variety of financial subsectors or business processes, such as the payments/transactions industry (digital payments and distributed ledger technology), insurance (Insurtech), corporate lending (peer-to-peer platforms, robo-advisors), compliance mechanisms (Regtech) or data-processing technologies with financial applications (big data).

Fintechs, often smaller, emerging market players, are able to compete with incumbent corporations that operate on a much larger scale. Through extensive innovations in the processing of hard information, they have an important competitive advantage vis-à-vis large, traditional financial institutions, who often struggle with rigid, legacy IT infrastructure, which takes time and effort to streamline and bring up to modern standards. In addition, Fintechs often operate in niche markets, with targeted product offerings, which has thus far limited their exposure to regulatory obstructions (Stulz, 2022). At the same, it also limits their ability to expand their networks, which puts them at a competitive disadvantage vis-à-vis larger banks.

Despite their potential competitive advantage, a growing body of evidence suggests a complementary role for Fintech companies within the financial system, as Fintech market penetration is often most intense in markets and subsegments where the reach of traditional financial infrastructure is limited (De Fiore et al., 2022). For example, Fintech credit has been shown to complement bank lending for small-scale loans (Tang, 2019), or to provide credit in geographical markets that are underserved by traditional banks (Jagtiani and Lemieux, 2018).⁶⁸

Furthermore, Fintech is becoming increasingly intertwined with the structures of the traditional finance sector, as established financiers such as microfinance institutions, business angels and venture capitalists have recognised the power of the crowd and have all been observed to co-invest with retail investors through crowdfunding (CF) platforms. Mainstream banks also entered the Fintechs space by incorporating digital payment processing technology into their own

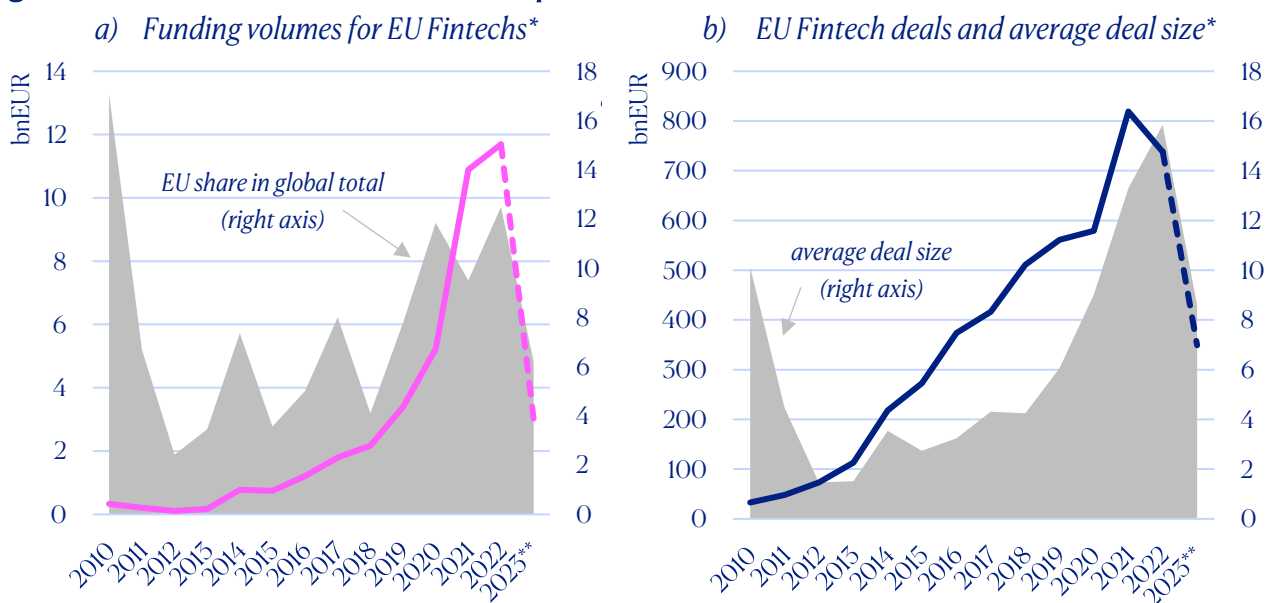
⁶⁸ See De Fiora et al. (2022) for a more comprehensive review of the empirical evidence of the complementary role for Fintech firms in the traditional financial system.

product offering, either through acquisition of existing Fintech companies, through in-house development of proprietary systems, or by using marketplace lenders as distribution channels.

7.2 | VC and PE Growth financing in EU Fintechs

Investments in European Fintechs companies have increased exponentially in recent years (Figure 76).⁶⁹ The post-pandemic recovery period has proven to be a fertile ground for EU Fintechs, as funding in the segments of VC and PE growth financing boomed, reaching a record volume of EUR 11.69bn in 2022. Globally, Fintech volumes declined by nearly 20% in 2022, totalling EUR 93.6bn, leading the share of global funding flowing to EU companies to increase slightly. Preliminary data suggests that, in line with general market trends, funding for EU Fintech companies will likely decline in 2023, with just EUR 3bn of investment recorded in the first three quarters of the year. The EU market share is also projected to decline significantly, as global Fintech volumes have not experienced a proportionate decrease.

Figure 76: Investments in EU Fintech companies



* VC + PE growth financing

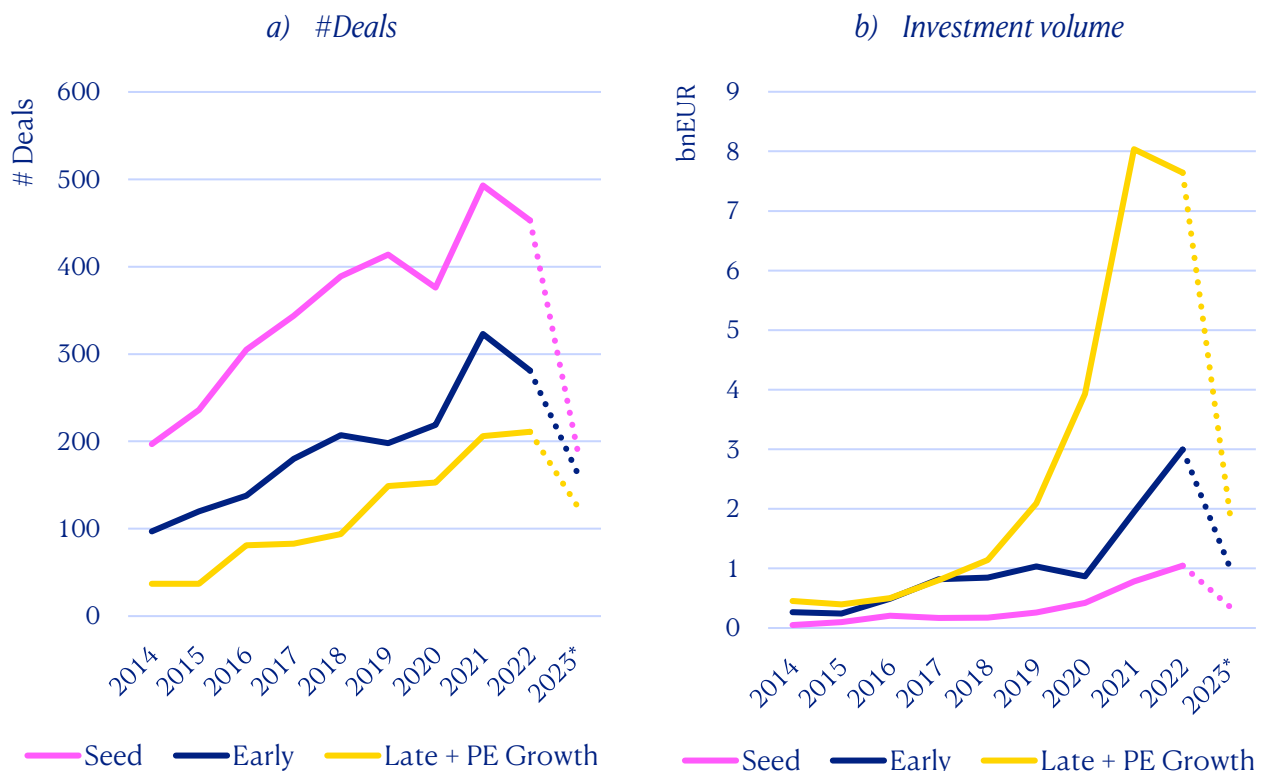
** Incomplete annual total at the time of data extraction (November 2023).

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

⁶⁹ This section draws on the PitchBook database to document trends on European and global Fintech markets. To narrow the focus on start-up and scale-up financing, the market segments most relevant to EIF, it considers combined VC and the PE growth financing into Fintechs companies that are headquartered in the EU-27. For an elaborate overview of the wider market, including buy-out and M&A activity, see KPMG (2023).

Before 2022, investment activity in EU Fintech firms was driven by a significant surge in the late-stage VC and PE growth financing. From 2019 to 2021, funding in these segments expanded from EUR 2.09 billion to an unprecedented EUR 8bn. However, in 2022, the upward trend reversed. Despite a consistent number of deals, investment in late-stage and private equity growth receded to EUR 7.6bn, signalling a moderation of the previous years' intense investment activity. Preliminary data for the first three quarters of 2023 suggests an acceleration of this trend, with a marked reduction in late-stage and PE growth investments.

Figure 77: Investments in EU Fintech companies by stage

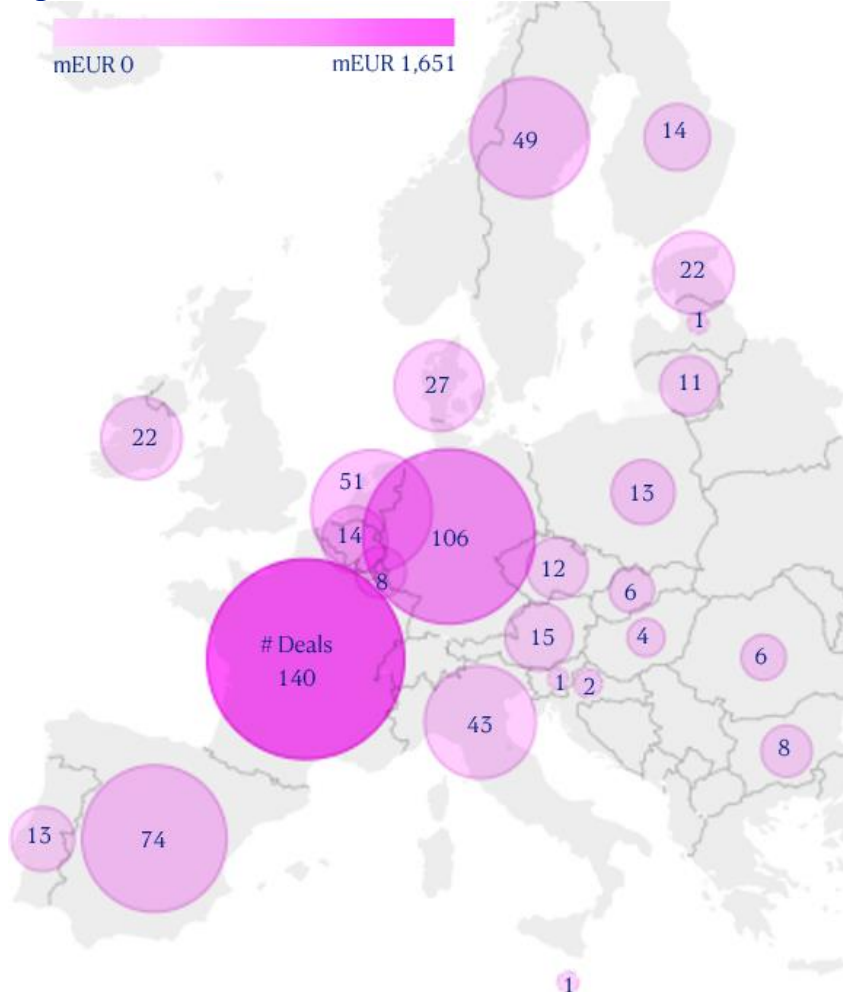


* Incomplete annual total at the time of data extraction (November 2023).

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

The sustained relevance of Fintech is evidenced by the widespread distribution of recent Fintech deal activity, with numerous Fintech investees that were funded in 2022 or 2023 being headquartered in nearly every EU-27 country (Figure 788). Consistent with concentration patterns observed on the aggregate VC market, the bulk of funding flowed to the traditional European investment hubs, with nearly half of Fintech deals involving either a German or a French Fintech company, as the two countries account for more than 70% of total EU investment volume.

Figure 78: Recent EU Fintech deals (2022 + Q1-Q3/2023)*



* Venture Capital and growth financing, incomplete data for 2023 at time of data extraction (November 2023).

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

Investment trends across various fintech subsegments over the past years reflect a dynamic and evolving fintech landscape. The Crypto sector has seen the most dramatic growth trajectory, with investments nearly multiplying tenfold between 2019 and 2022, although preliminary data for 2023 suggest a notable decrease in investment activity. Insurtech investments also experienced a significant surge in 2021 but has been trending downwards since.

While 2023 will prove to be a challenging year for all Fintech segments, it appears that companies focussing on crowdfunding or payment solutions will experience the largest decay in investment interest (Figure 79). This is likely to be attributed to the current rising interest rate environment, which has increased borrowing costs and tightened liquidity, thereby making investors more cautious and selective in these traditionally more interest-sensitive fintech sectors.

The Baltic region, and in particular Estonia and Lithuania, continues to emerge as a European Fintech hotspot, attesting to the effectiveness of an accommodating regulatory framework and a skilled local workforce in attracting innovative Fintech companies.

Other smaller economies such as Ireland and the Netherlands also punch above their weight, with Ireland having hosted over 20 deals that totalled nearly EUR 70 million and the Netherlands over 50 deals amounting to EUR 300 million. These figures highlight a diverse and vibrant Fintech investment climate across Europe, encompassing both established and emerging hubs of financial innovation.

Figure 79: Investments in EU Fintechs by subsegment*



* Venture Capital and growth financing. Deal activity per subsegment is aggregated using keywords derived from the PitchBook deal description, categories are not necessarily mutually exclusive. ** Incomplete year total at the time of data extraction (November 2023).

7.3 | Fintech prospects

The Covid-19 pandemic and the subsequent recovery period have proven fertile grounds for the continued development of Fintech worldwide. While the emergence of Fintech predates Covid, the confinement measures introduced in the wake of the pandemic outbreak significantly accelerated Fintech adoption, expanded the Fintech userbase and pushed Fintech investment activity to new highs. A significant share of new Fintech clients were customers that are typically underserved by traditional financial institutions, such as SMEs, low-income individuals and women, highlighting Fintech's complementary role to traditional financial sectors and its ability to enhance financial inclusion during crisis times (CCAF et al., 2022).

However, a number of recent high-profile down-size cases among some of Fintech's most prominent unicorns (Crunchbase, 2023), in terms of employment as well as valuation, have cast doubt on the sustainability of this exponential growth trend, as the sector is facing an increasing number of challenges. For many large Fintechs, particularly neobanks, profitability remains a concern. These firms had previously prioritised growth through intense investments but are now under increasing pressure from regulators and investors to transition towards profitable business models.

Evolving regulatory frameworks continue to play a pivotal role in shaping the future of Fintech. The exponential scaling up process of Fintechs world-wide has attracted increased scrutiny of regulators. As rigid regulatory measures are likely to further add to negative profit margins, as compliance costs increase, a balance will need to be struck between fostering innovation and protecting consumers. Global regulatory standards, focusing on cybersecurity, data privacy, and the ethical use of AI, will likely encourage transparency and build trust in fintech services, promoting greater adoption across diverse demographics.

The environment of rising interest rates presents both challenges and opportunities for the fintech sector. On one hand, by increasing the cost of capital and weighing on the fundraising environment, lofty tech-valuations that arose in the wake of the Covid-19 crisis could be subjected to additional corrections. This challenging environment could cause Fintech investment growth rates to flatten out further in the near future. Higher interest rates could also reduce consumer and business demand for credit products, especially within sectors like peer-to-peer lending and microloans.

On the other hand, high rates could also have a favourable impact on the Fintech sector. For one, they could drive Fintech innovation and incentivise companies to develop financial business models and products that are less sensitive to interest rate fluctuations. Moreover, higher rates could benefit certain Fintech business models. For example, the current high-rate environment is likely to positively impact (neo)banks' interest rate margins, a welcome development for a sector that has struggled with profitability in the past. This was evidenced in a recent study by Simon-Kucher, which estimated that only 5% of the 400 neobanks worldwide had managed to achieve profitability at the time of the study (Stegmeier and Verburg, 2022). Finally, the pressure of a high-interest rate environment may also accelerate industry consolidation, favouring Fintechs

with robust business models and solid financial backing, potentially leading to a more mature and stable market.

As the fintech landscape matures, the relationship between fintech companies and incumbent financial institutions is increasingly characterised by both complementarity and substitutability, further shaping the sector's evolution. Fintech firms, with their agile operations and innovative technologies, often fill service gaps left by traditional banks, offering enhanced convenience, efficiency, and accessibility. This complementary nature is most evident in partnerships where Fintechs provide modern tech stacks and user experiences to the robust customer bases and capital reserves of established banks.

Today, the EU Fintech sector stands at a pivotal juncture, balancing challenges and opportunities as it navigates changing economic conditions and regulatory landscapes. Its ability to adapt, innovate, and collaborate with traditional financial institutions will be key to sustaining growth and enhancing financial inclusion in the evolving global financial ecosystem.

8 | Green finance & investment

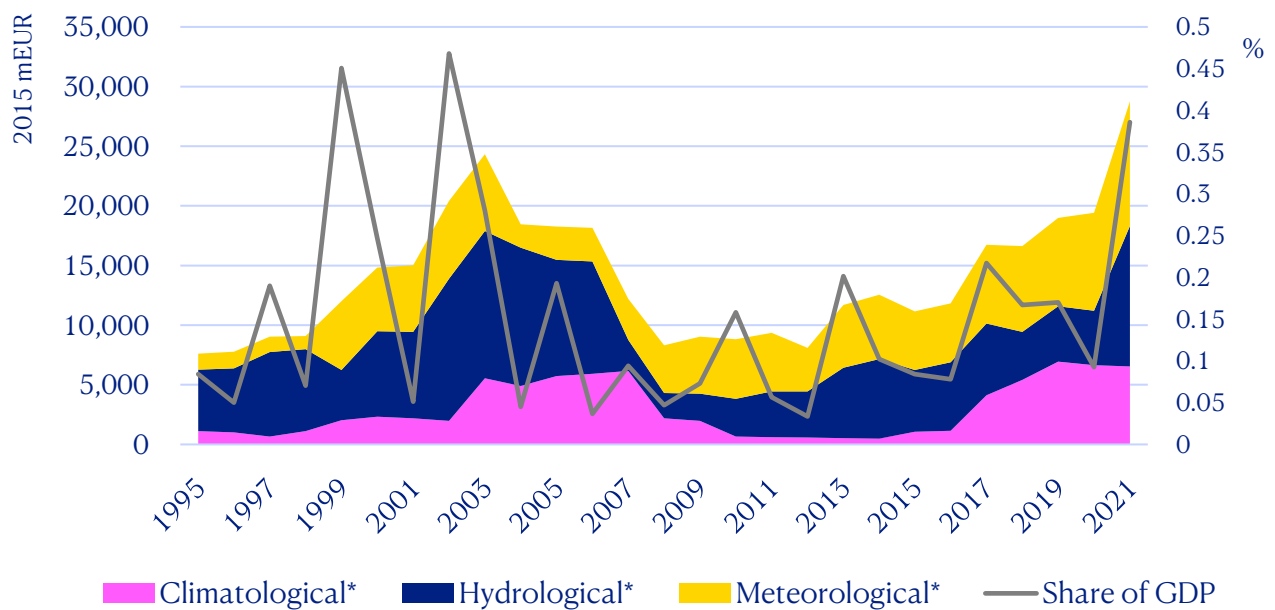
8.1 | SMEs and sustainability

The impact of climate change on the economy and SMEs

The latest IPCC report (IPCC, 2023) has once again underscored the urgent need for comprehensive climate action, highlighting the critical role investment plays in climate mitigation efforts. With human influence on the climate system now unequivocal, the report details the escalating impacts of climate change, including the increasing frequency and intensity of extreme weather events, rising sea levels, and shifts in precipitation patterns. These changes pose significant risks to natural and human systems, emphasising the necessity for rapid and far-reaching transitions in energy, land, urban, and infrastructure systems.

The average temperature in Europe has increased by 0.2 degrees over the past decade, the impact of which is starting to emerge as extreme weather conditions are becoming increasingly more prevalent. Even though the full extent of climate change on the European economy has yet to materialise, the economic impact of climate related events is already substantial (Figure 80).

Figure 80: Economic losses due to climate events, EU-27**



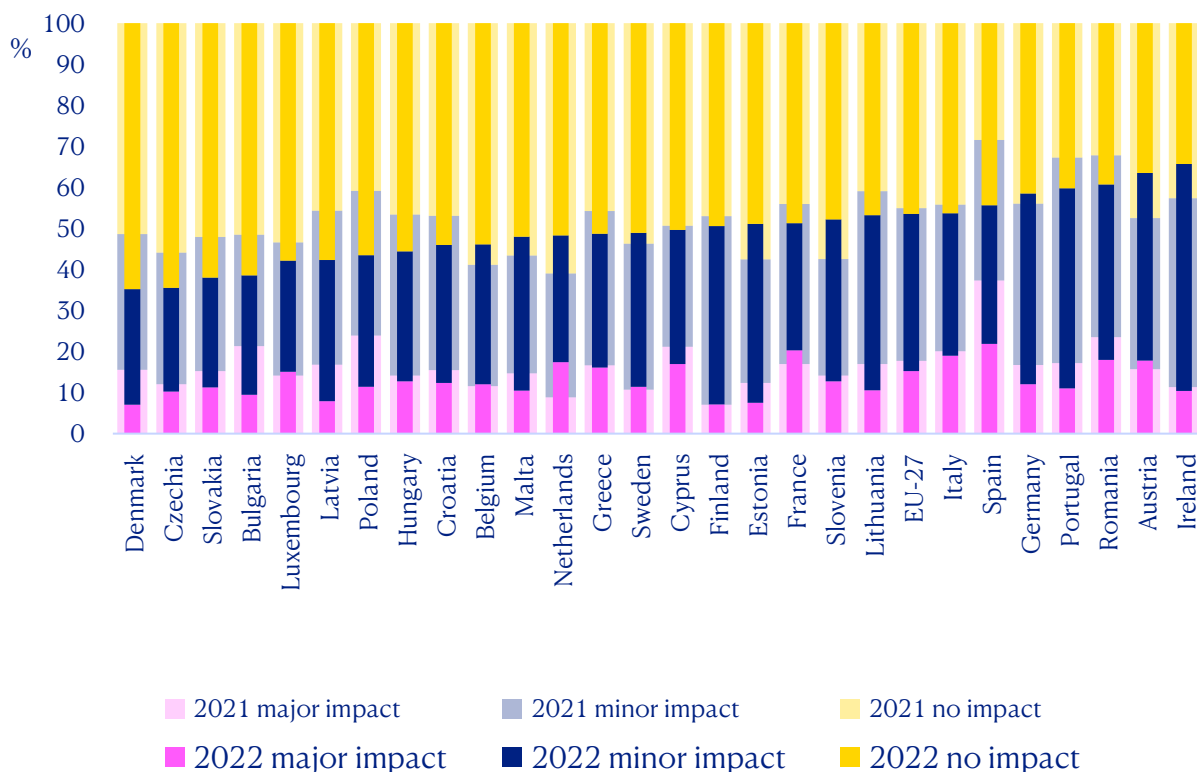
* Five year backward moving average.

In recent years, there has been a notable increase in economic damages resulting from climate-related extremes, both in absolute value and as a share of GDP. Over the past decade alone (2010-2021), combined economic losses amounted to approximately EUR 225bn (EEA, 2023),⁷⁰ underscoring the growing financial burden that climate change is imposing on economies.

The year 2021 marked a particularly devastating milestone in Europe's climate history. The continent faced its costliest climate disaster on record, with severe flooding inflicting nearly EUR 50 billion in economic damages, predominantly in Germany and Belgium. These floods, notable for their unprecedented intensity and impact, highlighted the increasing vulnerability of European nations to extreme weather events.

The pattern of climate-related disasters continued unabated over the past year, as reports of floods and wildfires became a recurring theme in the European news cycle. These events not only caused immediate and direct economic losses but also had far-reaching consequences on infrastructure, agriculture, and the broader ecosystem, pointing to a critical need for enhanced resilience and adaptation strategies, as well as more robust measures to mitigate the underlying causes of climate change.

Figure 81: Impact of climate change on SME businesses



Source: EIB (2023)

⁷⁰ The reported amounts constitute a lower bound of the true monetary impact of climate change, as they capture only financial value of damaged or destroyed capital. The economic losses resulting from business interruption are not captured, neither is the economic value of lives lost during weather catastrophes.

SMEs are not immune to the impact of climate change (EIB, 2023). According to the most recent EIB investment survey, more than half of EU SMEs reported climate change has already impacted their business. Unsurprisingly, climate related business disruptions occur more frequently and are more severe in Europe's most southern countries.

Why investing in sustainability is vital for SMEs

In the context of global climate change, sustainability has become not just an ethical choice but a business imperative. For SMEs, embracing sustainability means adopting practices that promote environmental stewardship, social responsibility, ideally in combination with economic viability. Following a path of sustainability is not only a societal expectation but also aligns with the inherent interests of SMEs themselves, as it safeguards SMEs from regulatory and reputational risks and potentially maximises future cashflows.

Investing in sustainable practices can positively influence the overall business performance of SMEs, affecting both the revenue generation and cost structure within a company's business model. Pursuing sustainable business models can increase revenue by broadening companies' customer base, as consumers are increasingly concerned about the environmental and social impact of their consumer patterns. Sustainable practices also lead to cost savings. For example, energy-efficient equipment can reduce utility bills, and waste reduction can lower disposal costs. Furthermore, sustainable investments in small-scaled, local, renewable energy generation or energy efficiency measures allows SMEs to reduce their reliance on energy suppliers and acts as a buffer against fluctuations in energy prices, as they become less susceptible to cost increases in electricity, gas, or other energy sources. As a result, energy-efficient SMEs can achieve more predictable operating costs. By reducing cash flow uncertainty, SMEs are more likely to undergo long-term productive investments, benefiting the economy as a whole. The EIB Investment survey provides evidence for this by confirming that high energy prices form an important obstacle for investment. In 2021, just over 60% of SMEs reported energy costs to be an important factor impacting long-term investment plans. Over 2022, following the turmoil on European energy markets, this share rose to 80% (EIB, 2023).

Adherence to environmental regulations has also become a critical aspect of business operations for SMEs. Many countries have implemented regulations that require businesses to comply with specific environmental standards. Proactively investing in sustainability measures can mitigate risks related to environmental liabilities and regulatory changes, and avoid reputational damages related to non-compliance. Vice versa, sustainability certifications can open doors to new markets and allow SMEs to demonstrate a commitment to sustainability, which enhances their reputation and brand image.

Evidence on SME sustainability investments

In the recent past, SMEs sustainable investment efforts have focussed predominantly on minimising waste (64% of SMEs), saving energy (61% of SMEs) or limiting material use (57% of SMEs), according to a recent survey conducted among EU SMEs in the context of the Flash Eurobarometer (Figure 82). The propensity of SMEs to undertake sustainable action has barely increased since the previous survey wave, undertaken in 2017. Moreover, the investment gap

between large firms and SMEs remains substantial, particularly concerning investments in waste management, energy efficiency and renewable power generation. A recent survey by Eurochambres (2023) reveals SMEs are showing a proactive approach to sustainability, with 12% voluntarily producing sustainability reports and 30% establishing environmental management systems.

Figure 82: Actions undertaken by SMEs in the context of resource efficiency



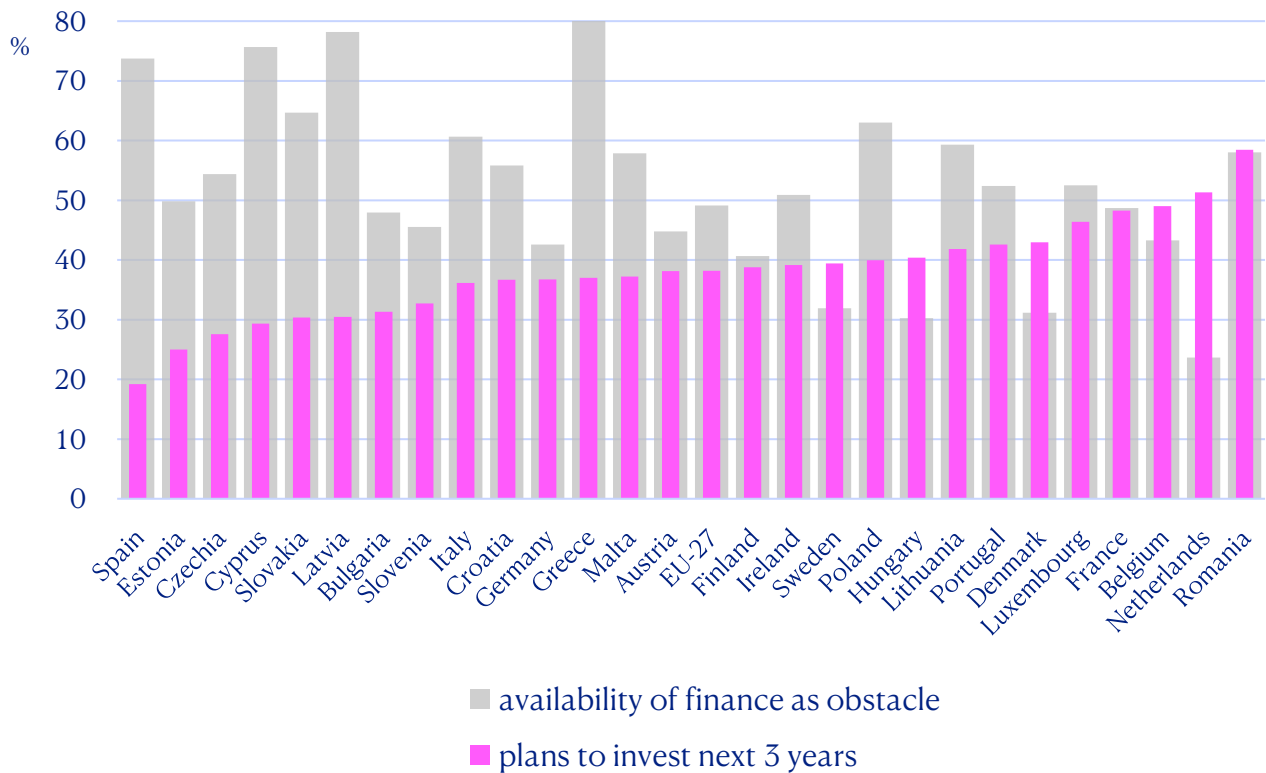
Source: European Commission (2022a)

SMEs' barriers to invest in sustainability

Financial constraints and lack of access to external financing sources remain one of the most important financing obstacles for SMEs' sustainable investment activity. Constrained by limited availability of internal funds, SMEs face challenges meeting with the substantial upfront investment costs associated with adopting green technologies. In addition, traditional lenders

are often reluctant to finance projects focused on sustainability, especially so if these are new and unproven. Consequently, the share of SMEs that plan to invest in mitigation or adaptation measures in the next three years is on average lower in countries where SMEs face more significant issues in accessing external financing (Figure 83). The Eurochambres (2023) survey reveals that while nearly 60% of SMEs in the EU are actively investing in their sustainable transition, they face significant challenges in securing adequate funding. Only 35% of these investments are externally funded, and a mere 16% can be classified as sustainable finance.

Figure 83: SME investment plans for mitigation and adaptation measures and availability of access to finance as a constraint for long term investment plans,2022



Source: EIBIS (EIB, 2023), authors' calculations

Informational barriers form another important obstacle to SMEs' green investment propensity. SMEs often lack access to reliable, up-to-date information on the effectiveness, costs, and long-term benefits of various sustainability initiatives. In addition, uncertainty with regard to regulatory initiatives or recent trends in technological advances further add to the difficulty in efficiently assessing the return on investments of sustainability projects.

8.2 | The EU Greentech ecosystem

Greentech innovation

Greentech innovation is a key element of Europe’s net-zero strategy. By lowering the cost of greenhouse gas abatement or pollution reduction, it can ensure the EU reaches climate neutrality in a cost-efficient manner. As noted by the IPCC (2022),⁷¹ “unit costs of several low-emission technologies have fallen continuously since 2010. Innovation policy packages have enabled these cost reductions and supported global adoption.” Between 2010 and 2019, technological breakthroughs in Greentech have decreased the unit costs of solar energy (-85%), wind energy (-55%) and lithium-ion batteries (-85%), leading to a strong increase in adoption rates (IPCC, 2022). Moreover, Greentech innovation can help EU firms to adapt to the reality of an altered climate, for example, through the development of new crop management or irrigation techniques in agriculture, better weather forecasting technologies, or advances in the field of disease control.

It is imperative that policy makers ensure the right enabling environment for these technologies to flourish. In particular, the development of a Greentech eco-system is crucially dependent on the availability of equity-based external financing. Equity investment provides the necessary capital for research, development, and scaling of innovative green technologies, allowing startups and established companies alike to bridge the funding gap and bring transformative solutions to market, accelerating the transition to a sustainable and greener future.

To gain an understanding of recent trends on the EU market for Greentech innovation financing, the analysis in this section considers VC and PE growth financing invested in Greentech companies that are headquartered on EU-27 territory. While studying this market is most informative to monitor current trends in green entrepreneurial equity finance, it should be noted that it constitutes only a fraction of the total Greentech investment market, which in addition to VC and PE Growth financing also includes mergers and acquisitions, PE buy-outs and IPOs.⁷²

Aggregate Greentech investment activity in the EU-27

Funding volumes for EU Greentech companies have risen strongly in recent years⁷³ (Figure 84). From 2018 onwards, the market has experienced exponential growth, reflecting the growing

⁷¹ IPCC (2022) Climate change 2022: Mitigation of climate change. Working Group III Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

⁷² For an analysis of what drives the development of Greentech ecosystems, see De Haan Montes et al. (2022).

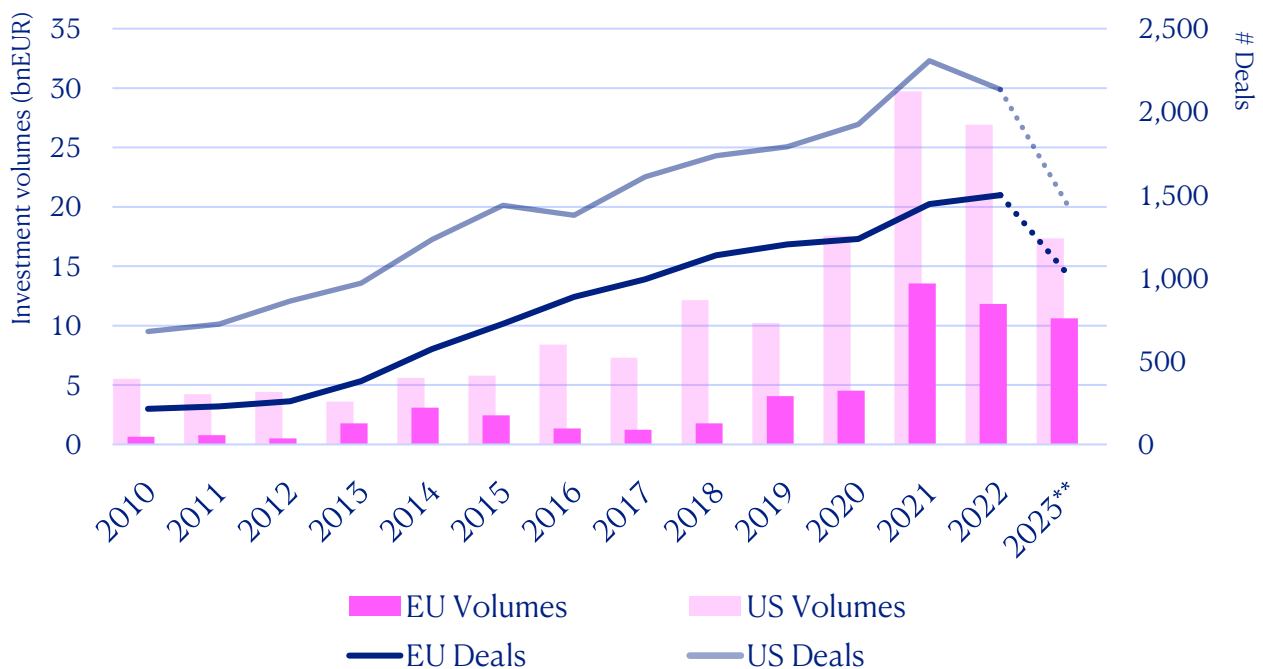
⁷³ Defined as the combined categories of Cleantech, Climate tech and Agritech companies in the PitchBook database, where Cleantech refers to “Companies with the primary purpose of developing new technologies related to clean energy production, transmission, storage, or use; water treatment and management; and/or efficiency in energy or resource management and use”; Climate tech refers to companies “developing technologies intended to help mitigate or adapt to the effects of climate change. The majority of companies in this vertical are focused on mitigating rising emissions through decarbonisation technologies and processes. Applications within this vertical include renewable energy generation, long duration energy storage, the electrification of transportation, agricultural innovations, industrial process improvements, ad mining technologies, among other”; and Agritech refers to “Companies that provide services, engage in scientific research, or develop technology which has the express purpose of enhancing the sustainability of agriculture. This includes wireless sensors to monitor soil, air and animal health; hydroponic and aquaponic systems; remote-controlled irrigation systems; aerial photo technology to analyse field conditions; biotech platforms for

societal concerns around environment and sustainability and the increased focus of EU policy makers on private financing as a catalyst for the green revolution.

Driven by sustainability-focus Covid stimulus packages, the EU Greentech market showed remarkable resilience during the pandemic. Over 2020, investments in EU Greentech companies increased by 53%, significantly outpacing growth in the aggregate market. The expansion of EU Greentech financing further accelerated during 2021, as total funding volumes more than doubled. While during 2022 conditions on global VC/PE markets became more challenging, the EU Greentech ecosystem continued to show resilience, as investment volumes and deal count stayed roughly constant.

With high inflation pushing interest rate in Europe to new highs, 2023 is proving to be a challenging year for European PE/VC markets. However, data at the time of writing appear to indicate that the EU Greentech market is able to withstand these headwinds reasonably well. During the first 10 months of the year, around 1000 deals accounted for EUR 11bn. While this nearly matches the total investment activity observed in 2022, a limited market contraction over the full year 2023 remains within the realm of possible outcomes.

Figure 84: Investment activity on the EU Greentech market (comparison with the US)*



*VC + PE growth financing

**Incomplete annual total at the time of data extraction (November 2023)

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

The EU Greentech market lags its US counter market in terms of absolute volume, although the EU has succeeded in recent years to avoid the gap to widen further. Moreover, preliminary data for the first 10 months of the year suggest the contraction in funding attracted by EU Greentech

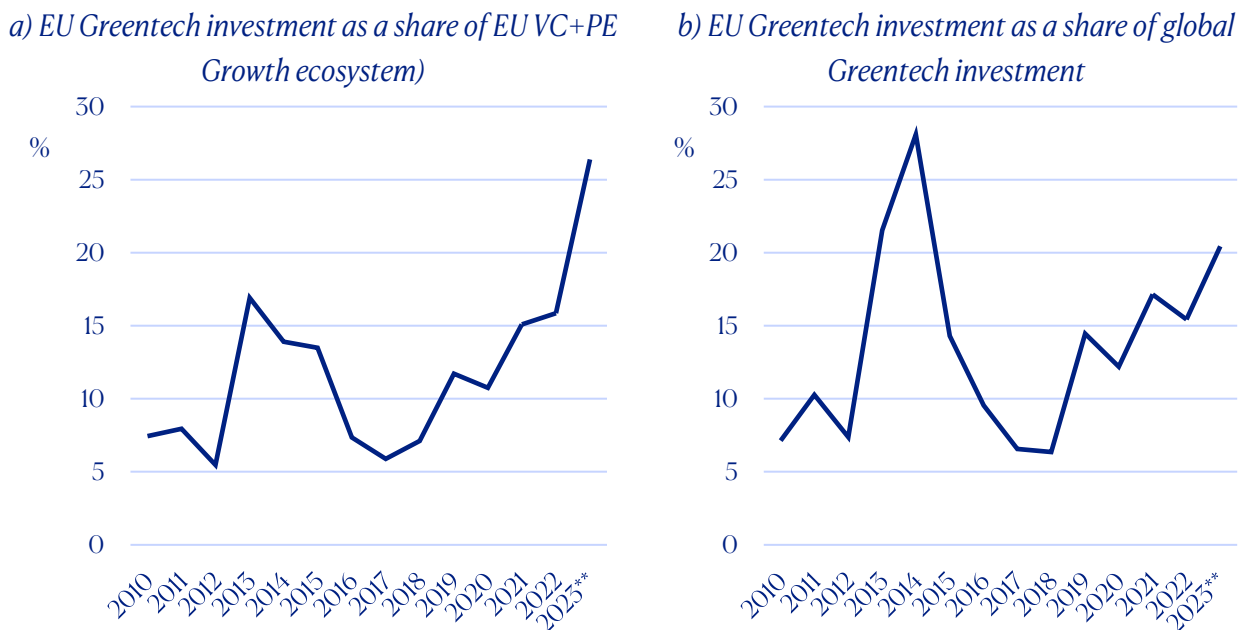
crop yields; data-analysis software to augment planting, herd, poultry and livestock management; automation software to manage farm task workflows; and accounting software to track and manage facility and task expenses" (PitchBook, 2023).

market will be more moderate compared to the US, possibly reflecting the impact of the Fed’s more aggressive monetary policy tightening. As it stands now, the impact of the Inflation Reduction Act, which was designed to, among other things, attract Greentech investments, has yet to manifest itself in market data, although the impact of such a comprehensive policy package on investment activity will likely take multiple years to fully materialise.

Over the past five years, growth on the European Greentech market has consistently outpaced growth on the general PE/VC market, resulting in a significant increase in the Greentech market share (relative to the aggregate EU PE/VC market), from just over 6% in 2017, to more than 25% in 2023 (Figure 85).

Globally, the EU Greentech sector's prominence has grown substantially since the introduction of the Green Deal and the share in global Greentech funding attracted by EU Greentech company has steadily increased. Based on preliminary data, during 2023, 1 in every 5 euro spend on financing VC + PE Growth Greentech companies will have flowed to investees that are headquartered in a EU member state (compared to just over 1 in 20 five years earlier).

Figure 85: share of EU Greentech deals in VC + PE Growth market*



*In total EU VC + PE growth financing.

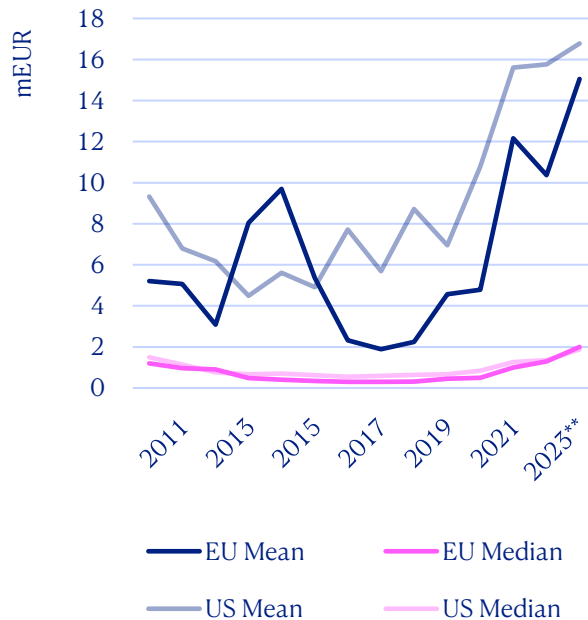
**Incomplete yearly total at the time of data extraction (November 2023)

Source: Pitchbook, authors’ calculations (data has not been reviewed by PitchBook analysts)

Scale & stage

Average deal size on the EU Greentech market has risen exponentially since 2017, as increased policy focus on sustainability and higher consumer demand for green technology have led scalable solutions to be more widely deployed. In recent years, average deal size has started to level, suggesting the development trajectory of the EU Greentech market may be transitioning into a new phase. Median deal sizes also started to increase, albeit a few years later, from 2020 onwards (Figure 86), suggesting that the scaling up process of the EU Greentech market has evolved to become a widespread phenomenon, which is no longer driven by a handful of large deals in the tails of the size distribution. Deal size distribution in the EU is comparable to those observed in the US. While the average US deal size consistently exceeded the European average in recent years, median deal sizes are approximately equal, suggesting the difference in averages is driven by a relatively small number of large US mega-deals.

Figure 86: Deal size evolution, EU vs US*



*VC + PE Growth deals by headquarter of Greentech companies.

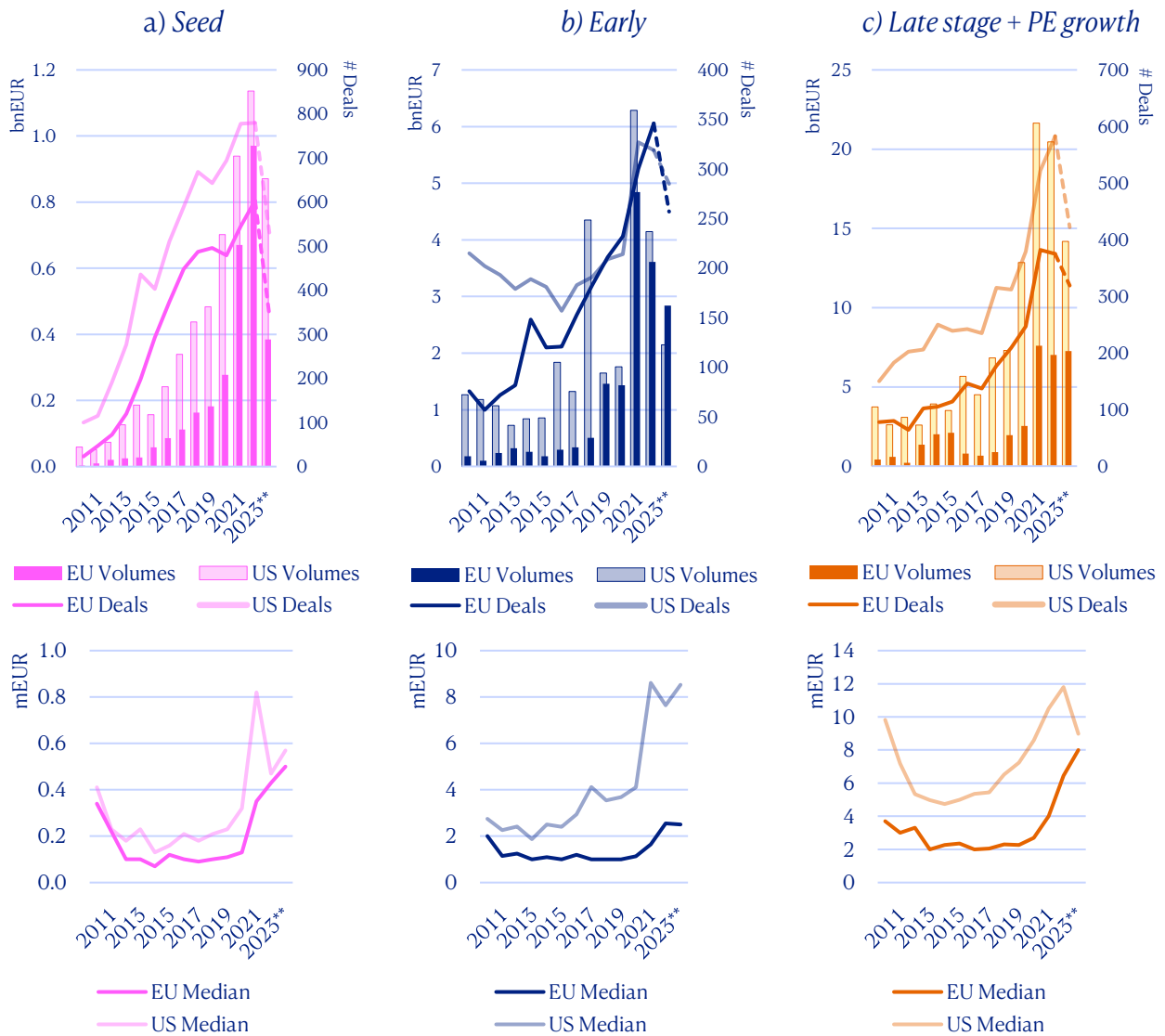
** Incomplete data for 2023 at time of data extraction (November 2023)

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

Examining the evolution of Greentech investment activity by stage dimension reveals additional insights into the distinct growth patterns of the EU Greentech market. In the realm of seed investments, where nascent innovations find initial support, EU investment volumes have only recently caught up with the US. Between 2010 and 2019, the lion's share of seed funding flowed to US Greentech companies, after which a surge of funding during 2020 and 2021 towards EU Greentechs nearly succeeded in closing the intercontinental gap. Preliminary data for 2023 suggests a significant decline in funding for seed-stage companies, particularly in the EU.

Recent evolutions on the early-stage market reveal comparable trends, albeit with some subtle differences. In the earlier part of the decade, progress was rather gradual, and the EU found itself trailing significantly behind the US market. However, 2018 marked a turning point, with the US market surging ahead, attracting nearly five times the early-stage funding compared to the EU. This stark contrast shifted dramatically in 2019, as funding for EU Greentech companies nearly tripled, while the US saw a significant drop. This shift marked the beginning of a more balanced development in subsequent years. Preliminary data for the first three quarters of 2023 hints towards European Greentech companies attracting more early-stage funding than US investees, although full year data are needed to shed further light on this development.

Figure 87: EU Greentech investment and median deal size by stage*



* VC + PE Growth deals by headquarter of Greentech companies.

** Incomplete year total at the time of data extraction (November 2023).

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

Growth of late stage and PE growth investments has also accelerated markedly between 2020 and 2021. While this evolution mirrors events on the early-stage market, later stage funding volumes for EU Greentech companies stabilised from 2021 onwards. This resulted in a growing gap with the US, where the late stage and PE growth market continued a steady path of expansion, although preliminary data for 2023 suggest the gap might diminish slightly as the US market is set to contract more strongly.

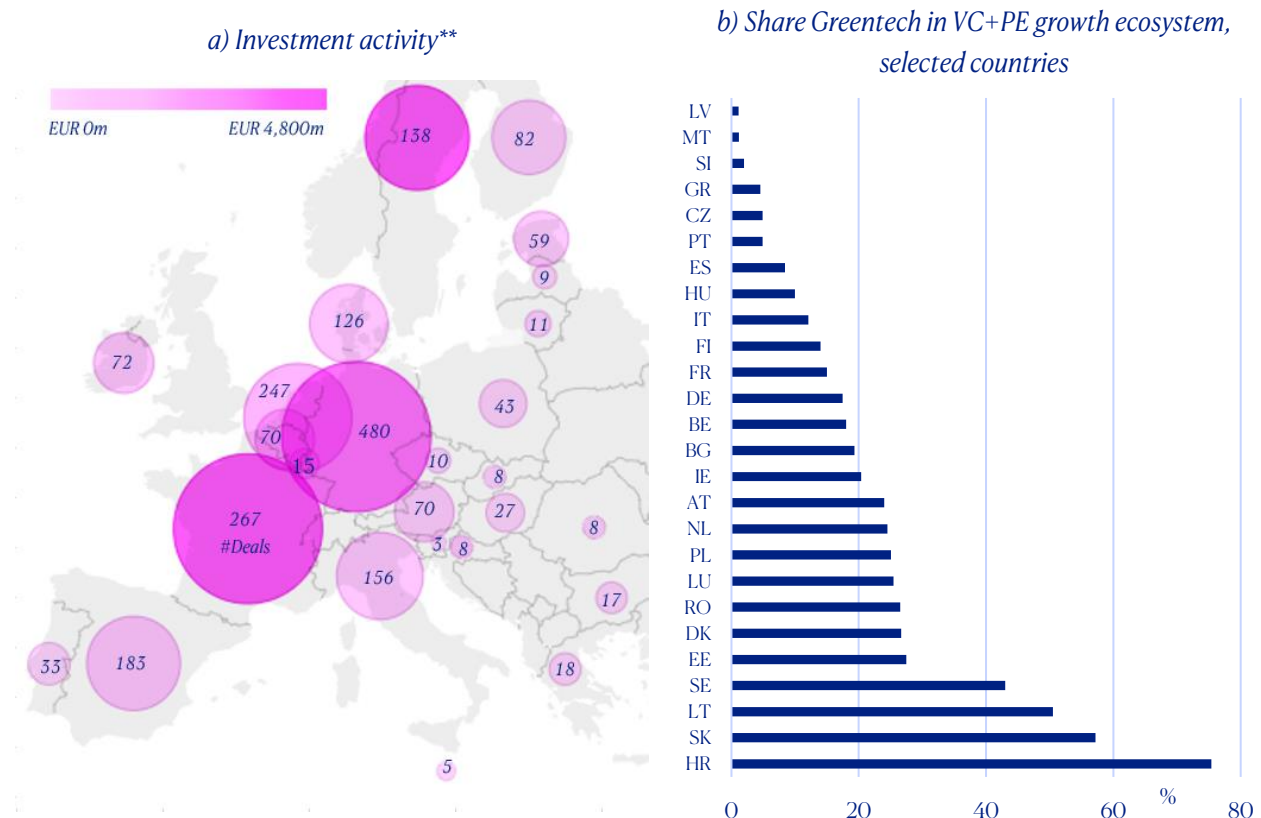
Looking beyond mere volumes, the evolution of median deal size across stage segments reveals that in recent years a scaling-up process has taken place across the entire development process of Greentech investees (Figure 87, bottom panels). Already at seed stage, median deal sizes have grown substantially in recent years, as investors are increasingly willing to commit larger sums of capital at the very beginning of a company's life cycle. Seed-stage investment scaled up at a

comparable rate on both sides of the Atlantic. The number of early, late stage and PE growth investment deals, on the other hand, a growth phase critical for a technology’s potential for market penetration, rose significantly faster in the US, potentially indicating that European Greentech firms face challenges in securing the necessary capital and resources to transition into larger, more established players.

Geography

Greentech investments are widespread within Europe (Figure 88), although the data reveals significant regional variation in investment activity. Northern and Western European countries, including Sweden, Denmark, the Netherlands, and Germany, traditionally considered as important European VC hubs, have established themselves as leaders in Greentech innovation. However, Central and Eastern European (CESEE) countries have also managed to attract their fair share of Greentech investments.

Figure 88: Geographical distribution of recent EU-27 Greentech investments* (2022-Nov/2023)



* VC + PE Growth deals in EU Greentech companies

** bubble size refers to number of deals, colour intensity refers to investment volume

Source: Pitchbook, authors’ calculations (data has not been reviewed by PitchBook analysts)

The relatively high green investment intensity (as measured by the share of Greentech investment in the overall VC + PE Growth ecosystem) observed in most CESEE countries is driven by a handful of very large mega-deals.⁷⁴ Green investment intensity tends to be

⁷⁴ For example, Rimac Automobili (Croatia).

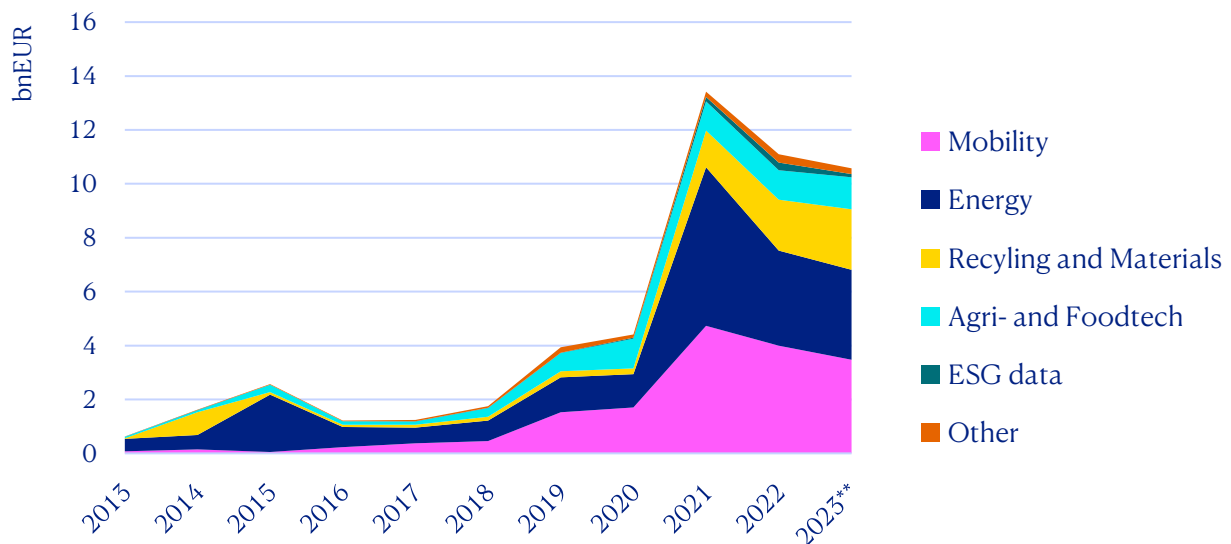
substantially lower in Southern European countries. For example, deals in Italian Greentech companies accounted for just 12% of total VC + PE growth investment volumes. For Spain, this share drops to 8.4%, while for Greece, Greentech deals accounted for hardly 5% of total investment volume, all falling well below the cross-country average of 19.6%.

Technology segments

The EU Greentech ecosystem is as diverse as the environmental problems it aims to address and Greentech companies are specialised in a variety of different application fields. Due to the cross-cutting nature of the Greentech concept, classifying companies into different Greentech categories is an inherently challenging exercise. In order to correctly interpret the results in the following section, the reader is referred to the classification methodology described in Annex 2.

The European Greentech ecosystem was initially dominated by investments in companies focussing on developing energy solutions, attracting 6.5 in every 10 euro of Greentech funding between 2013 and 2015. From 2015 onwards, the dominance of energy-related investment was countered by a growing focus on mobility solutions, whose share increased gradually, reaching nearly 40% by 2020. After 2020, the EU Greentech ecosystem became increasingly diversified, with a growing focus on recycling and agricultural technologies. Recent years saw the emergence of other technologies, largely reflecting the policy priorities formulated in EU regulatory initiatives.

Figure 89: Distribution of deal volumes across Greentech fields*



** VC + PE Growth investments in EU Greentech companies.

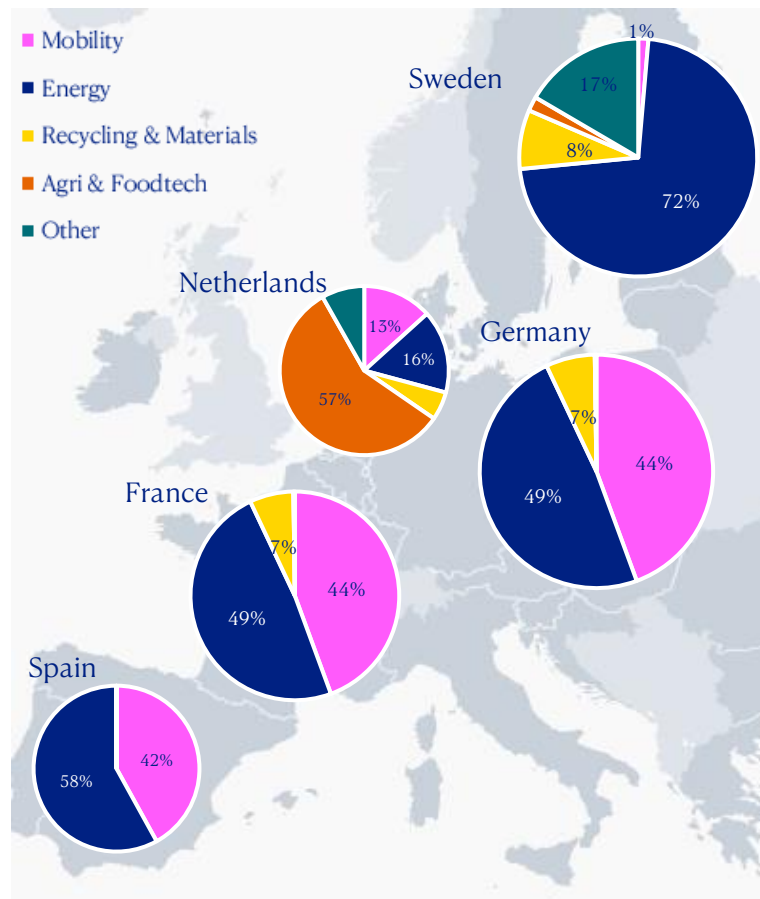
** Incomplete year data extracted at the time of writing (November 2023).

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

One notable emerging segment relates to investees developing IT solutions aimed at streamlining ESG reporting practices (ESG Data). While still negligible in 2018, attracting less than EUR10m of funding across the EU, it had expanded by a factor 30 by 2022, significantly outpacing the growth of aggregate Greentech investment activity, underscoring the growing

emphasis on sustainable practice transparency and stringent regulatory ESG reporting requirements and an increased demand for technologies that allow to alleviate the associated administrative burden of such reporting requirements.

Figure 90: Technology focus* of the 5 largest European local Greentech ecosystems (2013-Q3/2023)



*As measured by the market share of different subsegments in the total Greentech VC + PE Growth ecosystem. Due to its limited size, the ESG data category was merge into the rest category 'Other'.

Source: Pitchbook, authors' calculations (data has not been reviewed by PitchBook analysts)

There are pronounced differences in the environmental focus of local Greentech ecosystems (Figure 90). Combined over the period 2013/2023, the Swedish market has attracted more Greentech funding than any other EU country. While Swedish Greentech companies have been predominantly focused on mobility solutions, recent years have brought a shift towards diversification, with technologies focussing on recycling and sustainable materials gaining prominence. Germany, which hosts the second largest EU Greentech ecosystem, boasts a large share of energy-oriented investments, accounting for nearly half of the total market over the period considered, followed by mobility. The technology field distribution in Spain mimics the German one, with comparable shares across technology fields. The French Greentech ecosystem differentiates itself from other national ecosystem through its relatively high share of Agri- and Foodtech investments, although in accordance with EU trends, energy and mobility are the dominant sectors here as well. The Dutch Greentech ecosystem, the fourth largest Greentech ecosystem, is characterised by a broad diversification over different fields.

8.3 | SMEs green investment prospects

By endorsing the Paris Agreement on climate change, the European Union has already committed itself to carbon neutrality and a path of sustainable economic growth. The EU Green Deal presents the European vision on how to transform European society to reach climate neutrality by 2050, protect biodiversity and promote a circular economy. The EU Green Deal, and a number of associated regulatory initiatives, will prove to be vastly consequential for all segments of the EU economy and will have significant repercussions on European SMEs' investment behaviour and finance needs.

The European Commission's 'Fit For 55'-package (FF55) has laid out the legislative framework through which it aims to deliver on the Green Deal's environmental targets (European Commission, 2023c). As part of the first EU Climate Law, it comprises a comprehensive and interconnected set of proposals, which aims to decarbonise the EU Economy through increased use of renewable energy and faster progress in energy efficiency. The wide-reaching nature of the regulation contained in the FF55 package will be of significant relevance to European SMEs, as rising energy prices and regulatory reforms are likely to lead to a surge in green investment demand.

In response to the recent energy crisis and the need to reduce the EU's dependence on fossil fuels, the European Commission recently launched the REPowerEU initiative. Central to REPowerEU are measures to boost the production and use of renewable energy sources, improve energy infrastructure, and promote energy saving practices, aligning it with the broader EU Green Deal objectives. The REPowerEU initiative holds significant relevance for SMEs, as the additional funding made available through the program will facilitate SMEs' climate transition, while sheltering the most vulnerable of them from energy poverty (European Commission, 2022b).

In the context of these transformative initiatives, the European Commission's recent SME Relief Package plays a pivotal role in aligning the financial and operational needs of SMEs with the EU's green objectives. Recognizing the unique challenges and opportunities faced by SMEs in the shift towards a greener economy, the package offers a comprehensive set of measures aimed at facilitating this transition. It includes proposals for simplifying tax regulations for SMEs engaged in cross-border activities and a late payment regulation to improve cash flow, both of which are critical for fostering investment in green technologies. Additionally, the package emphasises the importance of access to finance, skilled workforce, and a supportive business environment, all of which are essential for SMEs to capitalise on the growing demand for green products and services. This strategic alignment of SME support with the EU's green ambitions underscores the Commission's commitment to ensuring that SMEs are not only beneficiaries but also key drivers in the journey towards a sustainable, climate-neutral economy (European Commission, 2023d).

Rising demand for green products and services indeed presents unprecedented growth opportunities for the EU's Greentech sector. By supporting the development of a healthy ecosystem of innovation finance, European policy makers can position the EU as a global market

leader in the field of Greentech technology. Moreover, those same Greentech companies will ensure the EU can transition to climate-neutrality in a cost-efficient manner.

Along with the demand for green products and services, the EU's Greentech sector has experienced significant growth in recent years. The growing success of Greentech investments aligns closely with a series of environmentally focused policy initiatives rolled out by the European Commission, evidencing their impact on the creation of a conducive environment for investment in green technologies. The significant rise in deal size that has accompanied the market's expansion reflects the advancements in technological complexity of Greentech business models, requiring larger capital injections at a technology's inception phase or a growing awareness of the profitability potential of Green technologies, or a combination of factors. This disparity in scaling speed between the US and EU in early, late-stage, and PE growth investments underscores the importance of addressing the funding gap for European Greentech companies. Supporting equity-finance instruments will promote the development of green innovations, which will render the climate goals more achievable and affordable, not just for SMEs, but for the European economy as a whole. In addition, it will allow the EU to position itself at the forefront of the global Greentech sector and enhance its competitive position in the global economic environment.

The availability of green debt-based financing will also prove pivotal for aligning European SMEs' economic activities with the objectives formulated in the Green Deal. The immediate investment demands associated with the intermediate 2030 carbon reduction targets are substantial. These expenditures encompass a spectrum of activities, spanning the adoption of energy-efficient production processes, the transition to renewable energy sources, and the enhancement of resource efficiency. While equity financing plays a crucial role in supporting innovation and technology development, debt financing is best suited to finance the implementation of green technologies that are already on the market today. Government support in promoting and facilitating such debt-based financing will prove indispensable to avoid crowding out other productive investments.

Heightened climate awareness is driving the race for leadership in the global Greentech landscape. In 2022, the US administration passed the Inflation Reduction Act (IRA), which contained important stipulations aimed at attracting green investments and improving the US competitive position in the global Greentech landscape. While available evidence at the time of writing holds no indication that the IRA has already initiated significant intercontinental shift in Greentech financing, the IRA's focus on boosting domestic clean technology may nevertheless impact the market access and competitiveness of EU Greentech companies in the near future. European policy responses, such as the Net-Zero Industry Act, will prove crucial for the direction of future developments in this context. Enhancing the EU's capabilities in innovation, workforce development, and creating a supportive business environment will be vital to maintain the forefront position of its Greentech sector in this rapidly changing global competitive landscape (European Commission, 2023e).

9 | Conclusion and discussion

Since the publication of the previous edition of the ESBFO in November 2022, Europe's economic outlook has slightly worsened. While the EU is managing the adverse shocks resulting from the pandemic and the war in Ukraine reasonably well, economic recovery has recently lost momentum. Inflation remains a major concern, weighing strongly on consumer and producer sentiment, as the tightened monetary policy stance of the ECB has pushed up borrowing costs to levels not observed since 2008. A strong EU labour market and inflation figures that are only slowly reverting to the 2% target level suggest that a near-term reversal of monetary policy is unlikely, implying capital costs for European corporates in general, and SMEs in particular, are expected to remain elevated for the foreseeable future.

The European *PE/VC ecosystem* weathered the crisis reasonably well. EIF survey results indicate that the market sentiment deteriorated in 2023, as respondents reported important challenges for their investees in 2023, particularly with regard to securing equity financing. At the fund level, alongside recurring challenges, they also reported a very difficult exit environment and severe fundraising issues. Expectations for the coming months have become more optimistic. The favourable developments in the PE/VC market during recent years are currently becoming contested by risks related to the geopolitical, economic and monetary environment. Moreover, the European PE/VC ecosystem still experiences important structural weaknesses. This indicates the need for continuous analysis of the market needs and for a strong policy response in support of the European PE/VC markets and its final beneficiaries, the European enterprises.

The EIF's aim is to support the European PE/VC market in order to establish a well-functioning, liquid equity environment that attracts a wide range of private sector investors. In doing so, the EIF aims at leveraging its market assistance and seizing market opportunities in all areas of the equity eco-system which are relevant to the sustainable development of the industry. EIF's role as a counter cyclical investor remains of crucial importance to support the market in light of the current challenges. In the coming years, the EIF will continue to act as a cornerstone investor across the spectrum of Technology Transfer through venture capital (incl. impact investing) to the Lower Mid-Market and mezzanine financing. This also includes the launch and extension of new/pilot initiatives.

Enhanced use of investment in equity funds or subordinated debt/quasi-equity (as well as first-loss provisions) can leverage greater private sector capital and improve the bankability of higher-risk projects. Some of these products can address niche or region-specific market gaps and investment needs or can act as a catalyst to enable and accelerate strategic investment and can be combined with tailored advisory support (EIB, 2020).

In the immediate aftermath of the Covid-19 pandemic, there was a strong surge in the use of *guarantee* instruments, both at the national and European level, to meet with urgent short-term corporate liquidity shortages. However, these extensive support programs have been gradually phased out. The total outstanding guarantee volume and the number of outstanding guarantees

decreased in 2022. While the volume of newly-granted guarantees in the full-year 2022 almost halved compared to 2021, it remained well above its pre-pandemic level in 2019.

The European *SME securitisation* market also bears the consequence of the ongoing polycrisis. Before the outbreak of Covid-19, SMESec issuance was still suffering from the after-effects of the financial crisis – and continued to suffer during the first year of the pandemic. In 2021 and 2022, visible SMESec issuance in Europe recovered to pre-pandemic levels. 2023 started slowly, with no visible true sale issuance. Many support measures are aiming at a market revival, amongst which are important regulatory adjustments.

In the areas of credit guarantees and securitisations, the EIF cooperates with a wide range of financial intermediaries, such as banks, leasing companies, guarantee funds, mutual guarantee institutions, promotional banks, and other financial institutions that provide financing or financing guarantees to SMEs, such as debt funds. Given that SMEs have no direct access to the capital markets, banks are typically the most important source of external SME finance. Hence, funding limitations of banks have direct impact on SME lending capacity. For loans to SMEs, a standardised, transparent and quality-controlled securitisation market could transform these illiquid loans into an asset class with adequate market liquidity.

Microenterprises and social enterprises are crucial for job creation and social innovation, especially in European regions with high unemployment. Given the heterogeneity of the EU market in the inclusive finance field, EIF provides funding, guarantees and technical assistance to a very wide range of financial intermediaries such as non-bank microfinance institutions, fintech lenders, crowdlending platforms, promotional institutions and agencies, alternative lenders and funds, cooperative banks and to a limited extent, commercial banks. Microfinance institutions use this support to address the challenges microenterprises and social enterprises face, offering not only microcredit but also non-financial services. MFIs are actively pursuing green and digital transformations, focusing on renewable energy, sustainable agriculture, and improving operational efficiency. Overall, MFIs' support is focused on aiding vulnerable segments through borrowed funds and technical assistance, underlining the importance of continued support at the European level, as provided by the EIF, to strengthen the microfinance sector and its impact.

The Covid-19 pandemic and the subsequent recovery period have proven fertile grounds for the continued development of Fintech worldwide. While the emergence of Fintech predates Covid, the confinement measures introduced in the wake of the pandemic outbreak accelerated the growth of the sector, culminating in the grand-cru year 2021, with record deal activity, in particular in Europe and the United States. However, the years thereafter brought about significant challenges, for the PE/VC market in general, but for Fintech in particular, as rising rates exerted downward pressures on the lofty valuation that emerged in the wake of the Covid-19 pandemic. Today, the EU Fintech sector stands at a pivotal juncture, balancing challenges and opportunities as it navigates changing economic conditions and regulatory landscapes. Its ability to adapt, innovate, and collaborate with traditional financial institutions will be key to sustaining growth and enhancing financial inclusion in the evolving global financial ecosystem.

In addition to the acute crisis situation in Ukraine and the lasting consequence of the Covid-19 pandemic on the global economy, the *climate emergency* is growing with every passing year. By endorsing the Paris Agreement on climate change, the European Union has committed itself to a path of sustainable economic growth. Private financing will play a central role in Europe's net-zero plans. Undeniably, European SMEs are at the heart of the EU Green Deal. Involving them in the transition process towards net-zero will be a key determinant of success for the European climate plan and the European goal to comply with the Paris Agreement.

In the Climate Bank Roadmap 2021-2025 (EIB, 2020), the EIB group outlines its goals for climate finance that supports the European Green Deal and helps make Europe carbon-neutral by 2050. SMEs and enterprises in the EIF's portfolio have been contributing to the EU's drive for resource efficiency and green transition for many years. The EIF aims to further accelerate its activities in the sphere of green finance, through its support for intermediated debt financing and equity products. The use of such instruments in support of climate and environment-related projects can make efficient use of (scarce) public sector resources and, thus, have strong leverage potential to catalyse investment by the private sector.

While sustainability will inevitably be incorporated into various aspects of SME financing markets, the rules governing the implementation procedures remain largely to be decided upon. While various regulatory initiatives have been put in place in order to limit the risk of investment greenwashing practices (eg, the EU taxonomy and sustainable finance disclosure regulation), the near-future implications for SMEs remain unclear. Obligatory sustainability disclosure requirements should consider the specific nature of SMEs and take into account the repercussions of additional red tape on SME market competitiveness. In this respect, institutions like the EIF can play an important role in establishing and spreading best market practices.

The development or further enhancement of intermediated debt products that support the green transformation will be among the key business development priorities of the EIF. These will be provided in the form of guarantees, counter-guarantees or credit enhancement and support for the European microfinance sector, with the shared purpose of accelerating the transition to green energy production, low emission transportation and to reduce greenhouse gas emissions and energy consumption in residential and industrial sectors, among others. In the same vein, through its activities with EU Member States and/or regional Managing Authorities, the EIF will design financial instruments promoting similar climate and environmental objectives, in line with national/regional policies.

Looking at equity products, Greentech innovation will ensure the EU can transition to climate-neutrality in a cost-effective manner. Greentech business models are often Deeptech and complex, requiring patient capital to outgrow the development stage and move towards commercialisation. Due to their nature, private funding made available to Greentech start-ups often undercuts demand. Therefore, government intervention is warranted. By supporting the development of a healthy ecosystem of innovation financing, European policy makers can position the EU as a global market leader of Greentech technology. As an early investor in European Greentech and a core implementing partner of the European Green Deal, the EIF has played a crucial role in the early development of the market. It will continue to provide support

by ensuring a sufficient supply of funds throughout the different growth stages of EU Greentech companies.

The current multifaceted crisis affecting Europe requires sustained, focused, and effective assistance for European SMEs. Moreover, the long-term consequences of the significantly changing framework conditions for SMEs lead to the need of a long-term horizon planning and preparation of support measures and strategic priorities in order to mitigate downside risks and to build on opportunities for European SMEs.

Annexes

Annex 1: SME shares by country industry

SME employment shares by country and NACE section (% , 2022)

Country	NACE	B	C	D	E	F	G	H	I	J	L	M	N
AT		68	44	31	62	78	60	52	90	69	92	90	51
BE		78	54	16	52	88	70	49	90	68	99	85	38
BG		26	65	21	36	90	86	64	94	61	97	90	56
CY		.	80	8	.	.	84	81	75	66	.	91	76
CZ		22	54	40	61	91	71	55	91	63	96	90	64
DE		65	39	43	48	90	61	44	87	49	85	70	49
DK		50	51	47	62	85	61	51	84	64	83	70	56
EE		51	78	47	71	95	74	76	88	74	.	.	69
ES		77	62	42	32	89	70	63	81	48	97	79	39
EU-27		42	52	30	46	87	68	52	86	55	89	80	46
FI		49	51	47	71	81	59	61	78	61	85	77	52
FR		59	38	11	25	74	57	33	75	40	69	74	36
GR		60	79	69	88	96	77	71	96	68	94	96	61
HR		.	61	19	61	90	62	66	82	68	.	95	66
HU		82	48	17	42	93	77	66	90	67	95	89	65
IE		73	50	9	71	91	69	62	88	53	85	74	47
IT		85	71	31	49	95	82	57	90	61	98	91	47
LT		.	64	51	72	90	74	59	89	75	.	95	57
LU		.	45	53	71	81	77	32	78	63	.	63	41
LV		80	76	45	68	92	74	72	87	61	90	96	80
MT		.	.	.	47	91	97	58	87	73	.	87	53
NL		70	66	28	48	82	64	52	84	67	84	81	35
PL		15	54	17	67	92	72	61	85	62	92	86	53
PT		78	76	54	49	91	79	64	90	65	100	90	57
RO		53	51	14	39	89	76	61	90	51	91	84	55
SE		28	39	29	55	76	57	48	83	50	76	71	40
SI		49	58	36	74	95	70	72	86	81	.	97	66
SK		79	59	34	49	97	77	61	95	68	97	89	84

*Colour intensity illustrates SME value added shares.

B	Mining and quarrying	H	Transport
C	Manufacturing	I	Hospitality
D	Electricity & Gas	J	ICT
E	Water & Waste management	L	Real estate
F	Construction	M	High-tech services
G	Wholesale and retail	N	Admin services

Source: European Commission (2023a)

SME value added shares by country and NACE section (% , 2022)

Country	NACE											
	B	C	D	E	F	G	H	I	J	L	M	N
AT	37	33	29	58	70	59	44	91	55	93	86	61
BE	64	36	49	40	83	73	53	87	48	99	81	47
BG	12	52	37	39	83	81	57	89	55	98	86	61
CY	.	78	33	.	.	81	79	84	45	.	88	73
CZ	23	40	20	51	82	66	46	86	45	97	84	66
DE	73	26	37	50	83	56	43	81	37	82	64	44
DK	59	36	64	82	83	70	41	86	61	88	67	67
EE	55	76	64	66	92	80	73	85	68	.	.	81
ES	61	50	33	36	82	68	59	81	37	99	75	44
EU-27	36	35	27	45	79	62	46	80	38	84	73	48
FI	46	37	59	71	75	60	70	76	57	97	75	59
FR	50	27	7	23	65	51	26	68	28	62	71	35
GR	33	50	24	36	78	68	56	72	36	94	67	45
HR	.	45	25	54	82	55	46	67	44	.	92	63
HU	86	31	9	51	84	74	64	86	51	99	82	67
IE	51	9	17	47	80	68	45	87	24	96	68	89
IT	67	59	27	44	90	72	49	86	39	99	84	46
LT	.	49	32	72	86	75	49	87	70	.	95	69
LU	.	35	52	73	81	84	34	79	57	.	58	70
LV	76	62	32	64	87	76	72	74	55	96	96	86
MT	.	.	.	10	91	92	85	86	82	.	92	85
NL	41	50	26	38	78	68	54	79	55	79	74	51
PL	10	40	9	61	84	61	49	78	36	95	76	56
PT	58	67	54	54	85	77	67	86	44	99	89	50
RO	36	36	19	39	87	71	64	89	48	97	78	55
SE	10	27	17	47	71	54	50	82	38	72	67	43
SI	53	52	48	71	94	73	58	80	68	.	96	68
SK	61	41	24	60	94	67	40	92	41	98	79	82

*Colour intensity illustrates SME value added shares.

B	Mining and quarrying	H	Transport
C	Manufacturing	I	Hospitality
D	Electricity & Gas	J	ICT
E	Water & Waste management	L	Real estate
F	Construction	M	High-tech services
G	Wholesale and retail	N	Admin services

Source: European Commission (2023a)

Annex 2: Classification methodology of Greentech technology fields

The classification used relies on Pitchbook’s proprietary categorisation system defined as *verticals*. Pitchbook designates verticals to investee companies by means of a keyword strategy based on companies’ business description. The analyses presented in Chapter 8 | are based on data relating to all investment deals involving companies that have been designated by PitchBook with the verticals ‘Cleantech’, ‘Climate tech’ or ‘Agritech’, referred to throughout the chapter as *Greentech*.

Table A2.1: The Pitchbook verticals underlying the Greentech investment data

Agritech	Companies that provide services, engage in scientific research or develop technology which has the express purpose of enhancing the sustainability of agriculture.
Cleantech	Companies with the primary purpose of developing new technologies related to clean energy production, transmission, storage, or use; water treatment and management; and/or efficiency in energy or resource management and use.
Climate tech	Companies that develop technologies intended to help mitigate or adapt the effects of climate change. The majority of companies in this vertical are focused on mitigating rising emissions through decarbonisation technologies and process.

Source: Pitchbook

The combined group of Greentech companies is segmented into seven mutually exclusive categories based on a cascading categorisation strategy that uses a combination of existing industry-based and keyword-based classification and exclusion.

Categorising Greentech companies in an exhaustive manner, while beneficial for understanding broad investment trends, presents inherent challenges due to the intersecting characteristics of many Greentech business models that typically span various sectors. Additionally, the access to aggregate data via the PitchBook platform is restricted by its user interface, introducing further constraints. As a result, the reliance on a keyword-based approach does not eliminate the possibility of misclassification. To mitigate this, a manual review was conducted on the largest deals to prevent significant biases in the trend analysis that may result from miscategorised large deals. The details of the related Pitchbook queries are available on request.

Table A2.2: Technological focus areas of Greentech investee companies

Agri- and Foodtech	<p>Services, scientific research or technology which have the express purpose of enhancing the sustainability of agriculture.</p> <p>Eg., IT technology for vertical farming, insect farms, ...</p>
Mobility	<p>Solutions in the field of sustainable transport.</p> <p>Eg., EVs, transport-dedicated battery production, technologies to promote clean maritime transport, ...</p>
Energy	<p>Innovations that seek to decarbonise energy production.</p> <p>Eg., renewable energy production (wind, solar, hydro, geothermal), energy storage, energy efficiency, ...</p>
Recycling and materials	<p>Sustainable use of resources through re-use of existing materials or the production of sustainable materials (eg, for the use in construction) to avoid natural resource depletion.</p> <p>Eg, waste management, recycling, sustainable material production, clean cement production, ...</p>
ESG data management	<p>A broad category capturing IT-based business models involving ESG information management, emission tracking, carbon offsetting, or related.</p> <p>Eg, carbon footprint calculation software, ESG target tracking applications, ...</p>
Other	<p>Catch-all category aimed to capture all companies not covered by other categories.</p>

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